ON

THE THREATENINGS OF APOPLEXY AND PARALYSIS; ETC.

BEING

THE CROONIAN LECTURES DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS IN MARCH, MDCCCLI.

Presented by S. Hey Esqr.
Leeds, May 1868.

W. Hey Esq
with the Author's best
compliments

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" In these facts we have the *Proof* that a slight degree of contraction of the muscles of the neck, induced by the electric current, induces, in its turn, heightened colour of the face, of a florid hue ; and that a greater degree of that contraction induces a deeper colour of the face, the lips and angles of the mouth being livid, and the eyes suffused, with confusion of thought, headache, dimness of sight, alternating with flashes of light ; these latter remaining for a few minutes after the cessation of the current, and then disappearing. They present the *Demonstration* of the nature both of trachelismus and phlebismus, and of their *effects*."—§ 107 ; compare § 232 and § 300.

ON

THE THREATENINGS OF APOPLEXY

AND PARALYSIS;

INORGANIC EPILEPSY;

SPINAL SYNCOPE; HIDDEN SEIZURES;

THE RESULTANT MANIA; ETC.

BY

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LONDON:

LONGMAN, BROWN, GREEN, AND LONGMAN, PATERNOSTER ROW.

MDCCCLI.

TO

HENRY SMITH, ESQ.

LATELY OF TORRINGTON SQUARE,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS;

ETC. ETC.

IN GRATEFUL REMEMBRANCE OF

HIS DISINTERESTED, UNTIRING, AND INVALUABLE

ASSISTANCE,

THIS LITTLE VOLUME IS INSCRIBED,

BY HIS ATTACHED FRIEND,

THE AUTHOR.

38, *Grosvenor Street, March* 20, 1851.

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The following pages contain a very brief and imperfect outline of a most momentous subject—that of the *principles* on which all *prevention* of the seizures about to be noticed depend. And, in these cases, prevention is the all-important object of the physician.

These seizures, when they have once occurred, are so apt to recur, the susceptibility to recurrence is so difficult to remove, the *effects* of attacks are so dire, whether we regard mind or limb, that *the one* object of the patient and of the physician must be to watch the dawn, as it were, of the malady, and adopt with energy and constancy every means of obviating such a calamity as a first or second seizure.

With this view, no premonitory sign should be neglected, however apparently slight. A flush, a sense of constriction about the throat, a momentary vertigo, a momentary loss of feeling or of power about the lips or the fingers,—should strike us with such terror as may, at least, awaken our utmost attention. This is the occasion for the maxim—'venienti occurrite morbo.' The best physician is he who *watches* his patient most carefully. The wisest patient is he

who submits—for *the rest of his life*, it may be—to his physician's injunctions, asking, not—'how little may I do?' but—'how much can I do?'—in my perilous case.

The regulation of the ingesta and of the egesta, of the occupations and emotions of the mind, of the exercises of the body, of the sleep especially, of the posture during sleep, of the circulation in the head and in the hands and feet,—these and many others are topics never more to be forgotten by the threatened patient.

It is not mere *doses* of medicine, which may indeed ward off an attack for the moment, but mild, yet efficient, *courses* of medicine, to which we must trust.

The *Emotions* and the *Irritations* are so frequently associated with undue secretion of gastric acid, that I cannot sufficiently recommend the due administration of antacids. With these, stomachic aperients, alterative mercurials, frequently gentle tonics, and especially, I think, the spinal tonic, strychnia, and every plan for the improvement of the general health, —the shower-bath, change of air and scene, but especially travelling,—must be combined.

The physician and the patient should be prepared for the recurrence of the threatening, or of the actual seizure,—and provided with the due and energetic means and instant remedies proper for the emergency.

In a word, the strictest regimen must be enjoined, with the view of prevention, and the promptest remedies in the case of threatening or of seizure.

The *means* of prevention are suggested entirely by the *pathology*. In *all* the affections treated of in these Lectures, certain causes and principles, emotions and irritations, act directly or diastaltically upon the muscles of *The Neck*, inducing what I have ventured to designate *Trachelismus*. If this *spasm* can be dissolved, all its *effects* cease, more or less perfectly. How important then is this view of the subject! I think that spasm *is* dissolved by an antacid emetic and antacid aperients.

In this manner we are enabled, I believe, in many instances, to prevent attacks of apoplexy, of paralysis, of epilepsy, and even of mania! Surely this is an important result.

And this result is the more interesting to myself, because it has flowed directly from a physiological principle, which has been both evolved and applied by my own labours. I would draw especial attention to the *Synoptical View* given at page 35.

The application of *Physiology* to *Pathology*, to *Diagnosis*, to the establishment of a *Class* of Diseases, and to their *Prevention* and *Treatment*, had never, I imagine, been so made before.

Man lives a life of Emotion. No moment of that life is passed in absolute tranquillity of mind. Every emotion has its influence on every muscle of his frame. It is written on the countenance, on the posture, on the very hands. The muscles of the neck do not escape; grief and anger choke; shame and indigna-

tion flush the face and neck. But what we term *expression*, as it affects the neck, is the first stage of trachelismus; and blushing and flushing are forms of phlebismus. Extremes of these become cerebral or spinal seizures.

Similar remarks may be made with regard to the Irritations. Errors in diet and deranged states of the alimentary canal, and excited conditions of the uterine system, are causes of disease to which mankind is most subject in a state of civilisation. I have explained the manner in which these and other causes of irritation act diastaltically on the neck, its nerves, its muscles, and its veins.

I beg, once for all, to state that I have excluded from the following pages, as from the Lectures themselves, all that did not bear on my argument. I propose in due time to put my subject into a more *systematic* form. The present state of the inquiry will be at once known by adding to this little work my *Synopsis of the Diastaltic Nervous System*, published a year ago.

ON

THE THREATENINGS OF APOPLEXY AND PARALYSIS; ETC.

LECTURE I.

PRELIMINARY FACTS AND OBSERVATIONS.

GENTLEMEN,

1. In the Croonian Lectures of last year, I had the honor of bringing before the College the subject of *The Spinal or Diastaltic Nervous System*, in its relation to Anatomy, Physiology, Diagnosis, Pathology, Therapeutics, and Obstetrics. I purpose, on the present occasion, to treat of a branch of that System, in its relation and application to the pathology of a peculiar Class of the Diseases of the Nervous System.

2. The physician is frequently summoned to cases in which, with or without an actual seizure, there is the *Threatening* of an attack—of Apoplexy, of Paralysis, of Epilepsy, or of Syncope. It is to these *Threatenings*, to these *Minæ*, according to the expression of

Heberden,—affections which equally alarm the patient, the patient's friends, and the physician,—that I beg to call your most serious attention.

3. On the occasion of excitement or emotion, or of gastric irritation, or in the midst of the most usual occupations, the patient is seized with vertigo, or a momentary oblivium or delirium, or various affections of the senses, or loss of muscular power, especially of the speech, of the hand, or of one side, and flushes, or turns pale, with intense alarm for fear of an apoplectic or paralytic seizure;—or the eyes and head may become suddenly fixed, the pupils dilated, the countenance flushed, with obvious loss of consciousness, and there is the threatening of epilepsy.

4. These *minæ* may last for a minute or two, and subside. But the patient is evidently in danger of a 'fit,' or seizure, and that of an apoplectic, paralytic, epileptic, or syncopal character; or such a seizure may actually take place.

5. What are the hidden springs of action which have been called into play in these various circumstances? What is the rationale, what the modes and means of prevention?

6. Some of these affections are of the slightest kind—"nihil aliud æger sentit præter oblivium quoddam et delirium adeo breve, ut ferè ad se redeat, priusquam ab adstantibus animadvatatur*." It is their

* Heberdeni Commentarii, ed. 1807, p. 139.

obvious and fearful *tendency* which gives them importance.

7. I have known mere *blushing* to become intense, constantly recurrent on every slight occasion, and attended by varied mental distress, and even to pass into an epileptoid affection; just as we have all known the flush of anger or indignation to pass into apoplexy. Mere 'sick-headache' sometimes passes into an affection of a far more formidable character. One patient experienced a sense of 'tightness' about the throat, with flushing, and the dread, and danger too, of some seizure, after taking indigestible food.

8. In one gentleman, sudden attacks of loss of speech, or of the power of the hand to write, took place from time to time, at varied and rather distant intervals, for ten or twelve years, leaving, at length, permanent inability to speak distinctly, or to retain the saliva perfectly, and a degree of paralytic weakness of one side. Ultimately an attack was attended by a degree of stupor and stertor; he was "quite unconscious to what was passing around him for ten or fifteen minutes, with loud snoring breathing, and then imperfectly conscious; and again, the next day, the mind seemed to wander at intervals, becoming, however, afterwards perfectly clear and composed."

9. Epilepsy itself could not be more paroxysmal.

10. Another gentleman became liable to attacks of loss of the power of articulation, so that he was compelled to *point* to the objects he required. At one

time he was seized with loss of the power of writing; at another, with transient hemiplegia. At length the inability to write occurred from the mere flurry occasioned by the loss of his spectacles at a moment when it was his duty to sign some official papers The next day he threw up his office,—and, a day or two afterwards, he committed suicide!

11. These are examples of what I have ventured to designate *paroxysmal* apoplectic and paralytic affections. Of epilepsy, as a paroxysmal affection, I need not now speak. But sometimes these seizures, instead of being apoplectic, or paralytic, or epileptoid, are *syncopal* in their external form and character. With or without previous flushing, the patient may become pale and faint, and exclaim—'I am dying!'

12. In some instances, again, these seizures take place *unobserved*,—in the night,—or in the absence of friends; and the effects and results of such *hidden* seizures are of the most puzzling character, until the occurrence of those seizures is detected, or at least suspected. These effects may be—a degree of stupor, of loss of memory, or of delirium; or actual *Mania*, or amentia!

13. One such case I shall hereafter lay before you in all its deeply interesting details. Obscure, and indeed not to be understood, until the fact of hidden seizures was discovered, all was made plain when that discovery was made.

14. Before I proceed, I must beg to be permitted to recall to your recollection the following extracts from the no less practical than classical work of Heberden:

15. "Invadente *apoplexia* aut *paralysi*, continuo laxare opertet omnes istas vestium partes, quæ *collum* cingunt; *id* enim nonnunquam his morbis advenientibus adeo *tumet*, ut ab arctiore quovis vinculo strangulationis periculum instaret." And—

16. "Instante accessione *epileptica* diligenter providendum est, ut omnes illæ vestium partes, quæ *collum* cingunt, quamprimum laxentur; *hoc* enim interdum adeo *tumet*, ut strangulationis metus impendeat." And again—

17. "Plerique *capitis dolores* vacant periculo; ubi autem ad hoc accedant stupor, aut *colli universi tumor*, aut mentis alienatio, aut distentiones membrorum, res ægri nequaquam in tuto sunt; hujusmodi enim mala subsecutæ sunt epilepsiæ, paralyses, et apoplexiæ*."

18. Abercrombie too notices—"the flushing of the face, turgidity of the features, throbbing of the external vessels, and other appearances, which have been referred to the doctrine of determination of blood to the head;" and adds, "numerous writers have remarked the unusual quantity of blood which is discharged from the integuments in opening the heads of

* Op. cit. pp. 299; 144; 86.

persons who have died of apoplexy. In some of Dr. Cheyne's dissections, upwards of a pound was collected in this manner." And again—"The remarkable turgidity of the features and the neck, which often occurs in apoplectic cases, must indeed be familiar to every one; and I think it appears to be most remarkable where the disease has proved rapidly fatal, without any means having been employed. A gentleman, whom I saw with Mr. Whyte, after some symptoms shewing an apoplectic tendency, was one morning found dead in bed, his body being scarcely cold. *His head and features were of a deep* PURPLE *colour, and* TURGID *in a most uncommon degree;* but no turgidity was observed in the vessels of the brain*."

19. To these extracts I must add the following observations from the same admirable work:

20. That writer observes—"The apoplectic attack is a sudden deprivation of sense and motion," "the face being generally flushed, and the breathing stertorous. In further tracing the history of such an attack, the following circumstances deserve our particular attention:—

21. "I. In many cases the patient speedily and perfectly recovers.

22. "II. In many cases the disease is speedily fatal; and we find, on inspection, extensive extravasation of blood.

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* On the Brain and Spinal Cord; ed. 3; p. 303.

23. "III. In other cases, which are fatal, usually after a longer interval, we find only serous effusion, often in no great quantity.

24. "IV. In many fatal cases, no morbid appearances can be detected, after the most careful examination.

25. "Thus," he adds," the phenomena of the disease appear fully to establish the important fact, that there is a modification of *apoplexy*, depending upon a cause of a temporary nature, without any real injury done to the substance of the brain; that the condition upon which this attack depends, may be removed almost as speedily as it was induced; and that it may be fatal without leaving any morbid appearance in the brain*."

26. The same remarks, according to the same authority, apply to *paralysis*:—

27. "The attack may, under proper treatment, pass off speedily and entirely, leaving, after a very short time, no trace of its existence."

28. "Many of the cases seem to bear a close analogy to simple apoplexy; and, when they are fatal, present either no satisfactory appearance, or only serous effusion, often in small quantity."

29. "The whole phenomena of *palsy* do indeed bear evidence that certain cases of it depend upon a cause which is of a temporary nature, and capable of being speedily and entirely removed. We see hemi-

* Op. cit. p. 205.

plegia take place in the highest degree, and yet rapidly disappear," &c. *

30. These then are the important subjects of the present Lectures:

1. The paroxysmal form of certain apoplectic and paralytic, as well as epileptic, seizures;

2. The various degrees of lividity and tumidity of the integuments of the face and neck in these;

3. The frequent speedy and entire recovery from them; or the absence of morbid appearances in the cases which prove fatal.

31. I shall have further to advert to the *cerebral* form of some cases of epilepsy, to the *syncopal* form of other seizures, and to the possibility of such attacks being *hidden*, and their effects mysterious.

32. It is obvious that, after much consideration given to the subject, Abercrombie felt the want of some principle on which to explain the occurrence of attacks of what he designates simple apoplexy. He asks, at the close of his interesting chapter entitled "*Conjectures in regard to the Circulation in the Brain*," "Why is not apoplexy produced by every increase in the mass of the blood, and why is it not excited by every instance of intemperance, violent exercise, or strong mental emotion? Is there any provision by which the effects of these causes are averted in their daily occurrence, though, in a certain condition of the

* Op cit. pp. 247; 249.

system, each of them may be capable of producing perfect apoplexy* ?"

33. It is to *this* great question, hitherto left unsolved, that I hope to present the answer.

34. I hope to show that, whatever the *violence* of the *arterial* circulation, there is no danger, no tendency to morbid action, as long as there is no impediment to the return of blood along the *veins;*—that the idea of '*tendency*' or '*determination*' of blood *to* the head, is a fiction and a chimæra; and that the real state of things in the condition which has been so designated, is, in fact, its IMPEDED RETURN *from* the head;—that this impeded return of blood from the head is induced by a *spasmodic* action of the *muscles* of the neck on the *veins* of that region,—an action *evident* in a vast many instances, though *latent*, perhaps, and *to be inferred* from the similarity of its effects, in others. *See* § 106.

35. To these conditions of the muscles of *The Neck*, I venture to give the designation of *Trachelismus* (from τραχηλου, the neck). Its effect on the veins may be termed phlebismus. It is frequently to be *felt*, when it is not to be *seen*, on applying the *finger*. It is still more frequently to be traced and inferred by observing the *lividity* and *tumidity* of the integuments of the face and neck.

36. Having made these preliminary observations,

* Op. cit. p. 310.

I proceed to the more detailed discussion of my subject.

1.—*The Paroxysmal Form of this Class of Diseases.*

37. The first characterictic of the Class of diseases of which I am about to treat, is—*their Paroxysmal form.*

38. Simple apoplexy, simple paralysis, not less than epilepsy and spinal syncope, may occur, recede, and recur, promptly, repeatedly, at varied intervals. Trachelismus, with its effect, phlebismus, is, indeed, to paroxysmal apoplexy and paralysis, what laryngismus is to epilepsy. Both are equally spasmodic, and subject to the laws of spasmodic affection.

39. In the first instance, the remission or recovery from these seizures may be perfect. Afterwards, some permanent effect remains, and there may be a degree of inarticulateness of speech, a little tendency to the flow of saliva over the lip, or a little debility in the movements of an extremity; or the mental faculties, the power of attention, of apprehension, of memory, may be somewhat impaired,—and nothing more.

40. These effects are equally the result of apoplectic or of epileptic seizures, though more speedily of the former than of the latter.

41. The causes too of these two forms of disease of the nervous system are the same—and chiefly, mental emotion and gastric irritation.

42. The difference appears to be, that in one case the cerebrum, in the other the medulla oblongata, is, principally, affected.

43. This result may depend on the different susceptibilities of these different portions of the nervous system, or on the different channel through which the cause may operate, in different individuals.

44. In a third instance, that modification of action obtains, which leads to ghastly pallor and apparent syncope, frequently with sickness.

45. Indeed, this sickness frequently plays an important part in paroxysmal diseases, occurring, as it does, in its slightest form of 'sick-headache,' or of what may be termed 'sick-giddiness,' or in the form or in the course of an apoplectic seizure.

2.—*The Lividity and Tumidity in Paroxysmal Affections.*

46. After their paroxysmal form, lividity of the countenance, either with flushing and turgescence of the face and neck, or with pallor, is the most characteristic phenomenon of these seizures. How is this phenomenon produced?

47. Augmented flow of arterial blood, as in violent exercise, may induce vivid, florid flushing; but how different is the hue of this flushing from the *lividity* observed in the threatening of apoplexy and

epilepsy! Impeded return of venous blood, observed in the case of effort, as in lifting, induces a deeper flush, somewhat mingled with lividity, and much more nearly resembling, in its hue, the pathological flush of those diseases.

48. Nor could *tumidity* arise from undue impulse of arterial blood, unaccompanied by impediment in its ulterior course. But admit the existence of impeded return of the venous blood, and tumidity is the evident, the immediate, and the inevitable effect of distension of the blood-channels placed immediately between the last branches of the arteries and the first roots of the veins, and of the veins themselves.

49. The lividity and tumidity of the face and neck, observed in certain diseases of the heart, and of the lungs; the livid flush of anger, of efforts, of stooping, are scarcely to be distinguished from the lividity and tumidity of the apoplectic or epileptic seizure. In the former cases, the lividity and tumidity are distinctly owing to impeded *arrière* or venous circulation. What is their nature in the latter?—what their cause and rationale?

50. We have all observed the livid flush of anger, and of gastric load and irritation. We have all known that livid flush to *pass into* the apoplectic threatening or seizure, as we all know that the excitement of the comitia of the Roman forum was apt to give rise to the epileptic attack, whence its ancient designation of *morbus comitialis*.

51. But what is the rationale of this venous turgescence of the face and neck? How do emotion, gastric irritation, &c. act in inducing this singular effect?

52. This—this is the deeply interesting question to which I beg your attention. It is the reply to this question which, I believe, presents the *Key* to all the difficulties in regard to the nature,—source and origin,—of *paroxysmal* apoplexy, paralysis, epilepsy, &c. And thus I am led to treat of the immediate and principal subject of these Lectures.

3.—*On Trachelismus; or Contraction of the Muscles of the Neck.*

53. We are all familiar with the phrase—'choked with grief or with anger,' and we have all witnessed the blush of shame and the deep flush of anger; and I have already stated that I have distinctly traced mere intense blushing into epilepsy, and that the still more intense flush of anger has passed into apoplexy.

54. With this blush of shame and this flush of anger, there are frequently, and in proportion to their degree, a purple lividity and tumidity of the face and neck, and even of the upper part of the thorax.

55. I have *seen* the same flush of the countenance, whilst the patient has *felt* a degree of stricture of the throat, with the fear of some seizure, as the effects of an indigestible meal.

56. The emotion of disgust, and gastric irritation, frequently issue in actual sickness and vomiting, involving closure of the larynx, or laryngismus, a partial trachelismus.

57. In epilepsy, the state of the neck is obvious to the eye; the head is *fixed*, or there is torticollis; and there is the 'facies nigrescens*' of Heberden. In the threatening of apoplexy, there is the same livid or purpurescent hue of the face,—and the same paroxysmal character. Is it possible to doubt that, what is evident in the former affection, exists, though in a latent form, in the latter, the *effects* and the recurrent character of the affection being the same?

58. The lividity and tumidity are not to be explained by any hypothetical 'tendency' or 'determination' of blood to the head, as I have already stated, and as I shall show more at length hereafter. They can only arise from *impeded venous return*. It is presupposed that there is no disease of the heart or lung to induce impeded venous circulation; and it is to be remembered that the affection recurs in paroxysms, that, in epileptoid cases, it *is* to trachelismus that the phenomena are traced, and that even in the apoplectoid, there are, in some instances, sensations about the throat, of no equivocal character.

59. History informs us that violent emotion and gastric irritation may issue in apoplexy. How is this

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* Op cit. p. 139.

phenomenon to be explained—for we have ceased to be satisfied with the vague and unmeaning expression of *sympathy?* I believe that trachelismus intervenes as the connecting medium between the cause and its dire effects.

60. The occasional *sensation* of strangulation, the purpurescence and turgescence of the face and neck, the loss of consciousness, &c. the sudden accessions and recessions, or the paroxysmal form, of the affection,—such then are the evidence of trachelismus.

61. This trachelismus probably occurs in the more deeply seated muscles of the neck, and, according to the *degrees* or *kind* of impeded venous circulation, may lead to further *cerebral*, or *spinal* symptoms; whilst the external evidence of its operation in the condition of the face and neck, varies from similar causes.

62. I may now observe that the *first* stage of trachelismus is probably always *latent;* being *inferred* from the turgescence of the face and neck. The *second* is inferred from *cerebral* symptoms in some cases, and from *spinal* symptoms in others.

63. The importance of this view will be seen when I come to treat of the further pathology of paroxysmal apoplexy; but still more when I proceed to discuss the treatment. There has long been, for instance, a question as to the propriety and safety of administering emetics in apoplectic affections. It is evident to me that this question must be solved by determining the previous question as to the *Diagnosis*

between paroxysmal and therefore secondary apoplexy, and apoplexy arising from organic lesion of the cerebrum. In the former, the first effect of ipecacuanha, or of nausea, is to resolve the spasm of the neck and break the first link of the chain of disordered actions. In the latter, the expiratory efforts of vomiting might augment the lesion already sustained by the tissues within the encephalon.

64. It is an important question—how far the action of the muscles of the neck may be specific in different instances. Are the various phenomena of external blushing, or flushing, of the apoplectic seizure, and of the epileptic attack, the varied effect of the compression of the external and internal jugular and of the vertebral veins respectively? These questions must, I think, be answered in the affirmative. But the satisfactory *proofs* of these facts may still be wanting. The act of sickness—the effect of emotion, or of gastric irritation—is, however, perfectly specific and distinct.

65. That action of the muscles designated *expression*, takes place in the *neck* not less than in the face; and it is thus the first stage of trachelismus, as the blush of shame and the flush of anger are the first shades of phlebismus, and, if I may venture to say so, of paroxysmal nervous affection.

4.—*Of Sleep, and its Trachelismus and Phlebismus.*

66. There is another topic, which I must briefly notice, in connection with that of trachelismus. It is the condition of the muscles and veins of the neck during *Sleep*. As the orbicularis contracts on the principal of *tone*, and closes the eye-lids, so the muscles of the neck contract and compress the veins of this region —inducing slight turgescence of the countenance, vivid suffusion of the eyes, and a sub-apoplectic state of the cerebrum and medulla oblongata. It is a slight trachelismus, and frequently concurs with other causes in inducing the apoplectic and epileptic seizure.

67. For the following interesting observation I am indebted to Dr. W. Tyler Smith:

68. "The person I observed kept falling asleep and waking every few minutes. In the course of a long ride, I had opportunities of seeing that, when he became unconscious, the external jugulars became full and strongly marked, and that these disappeared on the instant of waking from his brief sleep. There did not seem to be any change in the respiration, or in the position of his body, sufficient to account for the distension of the jugulars."

69. It would be well if some accurate index and measure of this condition of the muscles and veins of the neck could be discovered. I imagine that a little instrument like that devised by Dr. R. Quain, and

termed by him the *Sthethomoter*, might be employed for this purpose, and that it would indicate both the trachelismus and the subsequent phlebismus. The *facts* themselves, generally speaking, are however sufficiently obvious to the observant eye.

70. The relation between sleep and the apoplectic or epileptic seizure is well known. It is scarcely less remarkable than that of emotion and irritation with these seizures.

71. On this subject Heberden observes—

72. "Somnus est imprimis necessarius ad renovandas vires animosque, labore et curis exhaustas; et tamen procul dubio hominem opportuniorem reddit omnibus illis affectibus, qui ex nervorum infirmitate oriri existimantur; in quibus quoque numeranda est *apoplexia*, quæ sæpe per quietem crescit, vel tum primum invadit. Illos itaque omnes qui in his morbis sunt, et cupiunt amoliri præsentia mala, vel futura præcavere, oportet abstinere a nimio somno: optimus ejus modus erit, qui minimus salva valetudine capi potest."

73. "Somnus distentionibus amicus est, ut et omnibus malis quæ ex nervorum affectibus oriuntur. Itaque hæ quoque noctu præcipue molestæ sunt. Alios invadunt in somnum labentes, alios expergiscentes, multos etiam dormientes excitant*.

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* Op. cit. pp. 304; 353.

5.—*Turgescence of the Face and Neck, and of the Conjunctiva.*

74. To return to the subject of turgescence, I may observe that, under the influence of trachelismus, the veins, the arteries, and the intermediate blood-channels, become turgid, and the tissues of the face, head, neck, and eye, are suffused, and assume, in a greater or less degree, the hue imparted by venous blood. The veins on the forehead are enlarged, the temporal arteries become tense and throbbing.

75. The degree of these appearances marks the degree of impediment to the return of venous blood.

76. In many cases, of some duration, the conjunctiva becomes of a deep venous red colour, with enlargement of its veins. To observe these, I evert the lower eye-lid and use a lens of about an inch focus. Sometimes they admit of being traced in considerable number, and are of considerable size.

6.—*Effect of a Tight Collar or Cravat.*

77. It is here, I think, that I may most appropriately introduce the question of the baneful and dangerous influence of a tight collar or cravat.

78. It was observed by Dr. Donald Monro that soldiers were liable to be carried off by apoplexy, in

consequence of stricture of the veins of the neck, from being obliged to wear their cravats too tight*.

79. Abercrombie quotes a case from Zitzilius, of "a boy who had drawn his neckcloth remarkably tight, and was whipping his top, stooping and rising alternately, when, after a short time, he fell down apoplectic. The neckcloth being unloosed, and blood being drawn from the jugular vein, he speedily recovered†."

80. The following case occurred in the person of a most intelligent member of our own profession. I give it in his own words:

81. "A few weeks ago, my shirt collar was made too tight, and felt rather uncomfortable; yet not so much so as to induce me to change or slacken it. On looking into the mouth of a patient, in such a position as to twist my neck a little, I dropped down in my surgery as if I had been shot, in a moment, as helpless as a dead man. I soon got up; but my head was giddy for some time. I changed my shirt, and lost all fear of a return of the accident. There can be no doubt that it arose from compression of the veins."

82. I saw a patient, a very short time ago, whose face and ears were purple from the influence of too tight a collar and cravat. I was consulted from the occurrence of oneirodynia and subsequently maniacal

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* See Cheyne on Apoplexy, p 41.

† Op. cit. p. 202.

delusion. (Such a case is described by Heberden :— "Qui conflictantur cum arthritide, paralysi, aut malis hystericis, interdum expergiscuntur maxime perturbati, et quasi territi exclamant." "Pueri hoc modo experrecti interdum desipiunt horam integram priusquam ad se redeant*.") I loosened the collar, and the lividity of the complexion disappeared. I do not yet know whether the oneirodynia and its consequence also ceased.

83. The influence of a tight collar or cravat is not duly appreciated. It may be slight, in a state of repose. But on moving the head variously, the muscles of the neck expand; this expansion cannot take place *outwardly;* it therefore takes place *inwardly*, and so compresses the subjacent veins! It is on this principle, not, I think, generally acknowledged, that a moderately tight cravat may prove an unsuspected source of danger. Under the influence of such a cravat or collar, the not unusual actions of the muscles of the neck become a sort of trachelismus, perhaps more frequently than is imagined. The cravat, too, which is not tight generally, may become so under the influence of sleep, of emotion, or of gastric repletion.

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* Op. cit. p. 151.

7.—*Results of Experiments.*

84. I have long projected a series of experiments with the view of illustrating the effects of the impeded return of blood from the head.

85. 1. I propose, in the first place, to ascertain the effect of a ligature, of various degrees of tightness, applied round the neck.

86. 2. I propose, in the next place, to determine the effect of a ligature round the neck, of extreme tightness, tracheotomy having been previously performed;

87. 3. In the second place, I propose, having applied a thick and soft ligature round each jugular and vertebral vein, under the influence of chloroform, to tighten these, first, one by one, then two by two, and, lastly, three by three;

88. 4. I next propose to trace the effect of a current of electro-magnetism variously across the neck, so as to induce artificial trachelismus and phlebismus.

89. An experiment of the second kind was performed, at my request, by my friend, Mr. Henry Smith, and Mr. Coates of Salisbury:

90. "On December the 17th, 1850, a full-grown greyhound was placed under the influence of chloroform, and an opening was made into the lower part of the trachea.

91. "Five hours were allowed to elapse, a double tracheotomy tube was inserted, and a cord was tightened round the upper part of the neck. After a momentary struggle, the animal became still, and the respiration slow; the eye-balls protruded, the pupils gradually dilated until the iris was a mere line, and the nearest approach of a taper induced no contraction. The diastaltic actions, as indicated by the closure of the eye-lid and retraction of the eye-ball when touched, were perfect.

92. "After the lapse of an hour and a half, the respiration had become short and feeble, the expirations being longer than the inspirations; there were occasional convulsive inspirations, and the sphincter ani was relaxed. The pulsation of the heart was audible at the distance of a yard, and induced a movement of the flame of the taper held near the orifice in the trachea. The disastaltic actions became feeble, and at length ceased. The cornea began to appear hazy and shrivelled. The tail was occasionally moved convulsively from side to side, and the anterior extremity became raised and the posterior extended powerfully, and then relaxed as suddenly.

93. "After the lapse of another hour, the respiration and the action of the heart continued as before; the tongue hung out of the mouth.

94. "In another hour and a half, the respiration and the action of the heart ceased, amidst slight convulsive movements of the posterior extremities

95. "On examination, about six hours after death, the membranes and substance of the brain and the pia mater of the medulla oblongata were found gorged with blood, and *bloody serum* was found in the ventricles and at the base of the brain."

96. It is obvious, from this experiment, that impeded flow of blood along the veins is instantly followed by insensibility—apoplexy, in fact,—and afterwards by epileptoid affections. It is impossible, I think, to imagine an experiment more replete with instruction.

97. The following experiment I quote from a paper of the late Sir Astley Cooper, Bart.:

98 "In one rabbit I tied the jugular veins on each side of the neck. When it was set at liberty, it ran about, cleaned its face with its paws, and took green food.

99. "Its respiration was reduced to 68 inspirations in a minute, which is about half the natural number. After four hours, it ran about as if nothing had happened; and eventually recovered.

100. "When it was killed and injected, I found, on each side, three anastomosing veins passing from the anterior to the posterior part of the jugular vein, and conveying the blood from the head to the heart; the vertebral vein had remained whole, and become enlarged, and passed, on the fore part of the vertebræ, from the head to the space between the fourth and fifth cervical vertebræ, where it entered the vertebral canal.

101. "In a second rabbit, I tied the jugular veins on each side of the neck, as before. The animal's respiration became slow; but it ate green food, ran about, and was difficult to catch: but, for five days after, it appeared dull; its ears had dropped. On the seventh day, it was seen to be convulsed, and frequently rolled over. Its voluntary powers were lost, as well as its sensation, in a great degree. On this day it died. On examination, *a clot of blood* was found extravasated in the left ventricle of the brain.

102. "Hence it follows, that apoplexy will occasionally result from an obstruction to the return of blood in the jugular veins; and this I have known to happen from enlargement of the glands in the neck of a boy*."

103. Sir Astley Cooper was also in the habit of shewing an experiment in which he compressed, as he supposed, the carotids and vertebral arteries in a rabbit. It was doubtless the jugular and vertebral veins.

104. For the following most valuable fact I am indebted to J. Russell Reynolds, Esq. of University College, a gentleman of great talent and promise:

105. "A girl, nineteen years of age, was admitted into University College Hospital for aphonia; and, amongst other things in the treatment, she was ordered to have galvanism applied to the larynx daily, by the electro-magnetic machine.

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* Guy's Hospital Reports, vol. i, p. 471.

106. "While using this machine, I observed the effect upon the muscles of the neck, and remarked that, when the wheel was turned slowly, and the superficial muscles were alternately contracted and relaxed, *the colour of the face was heightened*, and of a florid hue, and no unpleasant feelings (further than those arising from the shocks) were experienced; but when the wheel was turned rapidly, with a less powerful current, and the muscles were maintained, during the rapidly intermitting action, in a state of almost permanent contraction, *the face became of a deeper colour*, *the lips and angles of the mouth livid*, *the eyes suffused*, and some feelings of confusion of thought, headache, and dimness of sight, alternating with flashing of light, were induced. The latter effects remained after the cessation of the current, for a few minutes, and then disappeared."

107. In these facts we have the *Proof* that a slight degree of contraction of the muscles of the neck, induced by the electric current, induces, in its turn, heightened colour of the face, of a florid hue; and that a greater degree of that contraction induces a deeper colour of the face, the lips and angles of the mouth being livid, and the eyes suffused, with confusion of thought, headache, dimness of sight, alternating with flashes of light; these latter remaining for a few minutes after the cessation of the current, and then disappearing. They present the *Demonstration* of the nature both of trachelismus and of phlebismus, and of their *effects*.

108. Apoplexy may depend on a first degree of the effects of compression, and convulsion or epilepsy upon a second; or—apoplexy may depend upon interrupted flow of the blood along the jugular veins principally, and epilepsy, upon interrupted flow of blood along the vertebral: this at least appears to me to be probable. But experiment must determine the interesting questions.

109. Whatever may be the rationale of epilepsy in this respect, the *effect* of the paroxysm is greatly seen in the condition of the integuments, in the extreme lividity of the countenance, the frequent ecchymoses, especially about the temple, the occasional blood-shot eye, and the not unfrequent epistaxis. The condition of the face and neck, therefore, however it may be an indication of the condition of the encephalon, is by no means a measure of that condition. There is more of lividity in epilepsy than in apoplexy; but there is a greater *degree* of stupor and of the tendency to paralysis in the latter than in the former, though these occur in both.

8.—*Pallor, Sickness, Faintishness, &c.*

110. Instead of flushing and turgescence of the face and neck, we very frequently observe pallor, with or without sickness, and faintishness, in cases of seizure.

111. Pallor may be produced by a syncopic impression on the heart itself alone, and directly.

112. But pallor and sickness conjoined *must* depend on a common cause, and that cause is doubtless seated in the medulla oblongata.

113. This affection may follow the opposite state of flushing, and be the effect of fear. One patient, to whose case I have already adverted as an example of paroxysmal paralysis, exclaimed—'I am dying!' He turned pale with terror.

114. In other cases there are pallor and ghastly lividity, probably as the immediate effect of trachelismus on the vertebral veins, inducing *irregularity* of circulation in the medulla oblongata. Faintishness, sickness, and vomiting, frequently ensue. The event may be compared with what is experienced by some persons from the movement of a carriage or a swing, and by almost all from that of a vessel on a rough sea. Irregular impulses of the blood on the medulla oblongata induce the effect of shock on the heart, and of irritation on the muscles of expiration combined in the act of vomiting. In the cases to which I have alluded, the cutaneous pores are frequently relaxed, and a cold perspiration bedews the patient's surface.

115. There is frequently, in this case, as well as in that of suffusion of the countenance, loss of consciousness, and the fear of falling, or actual falling.

116. It is a case to be most carefully distinguished from ordinary syncope from sources of exhaustion, dis-

ease of the heart, &c. and I propose to characterize it by the term—*Spinal Syncope.*

117. Sickness is sometimes associated with headache, thus constituting ‘ sick-headache,’ sometimes with giddiness. It is frequently an effect of the emotion of disgust; sometimes, of a fall on the head; sometimes, of an apoplectic seizure.

9.—‘ *Tendency’ of Blood to the Head ; in reality, its Impeded Return.*

118. There is no physiological principle on which we can found the idea of ‘ tendency’ or ‘ determination’ of blood to the head.

119. If the circulation be accelerated by any cause, it is still accelerated equally or proportionally in every artery of the body. This result flows from the important experimental researches of M. Poiseuille.

120. And if there were such a principle of unequal distribution of the arterial blood, it would not explain the phenomena of *venous* turgescence and purpurescence observed in the cases of apoplectic and epileptic seizures.

121. But impeded venous return may be partial, and the cause at once of turgescence and of purpurescence; it is explained by the *fact*, frequently evident, however it may be sometimes latent, of spasmodic contraction of the muscles of the neck.

122. The most violent action of the heart and arteries can only induce throbbing and flushing; impeded venous return induces these, with the turgescence and purpurescence to which I have adverted, and various symptoms, such as headache, vertigo, loss of consciousness, &c.—symptoms produced equally by trachelismus and by too tight a cravat.

123. I shall never forget the interesting phenomena which I witnessed in a little boy, an American, whilst his father, an intelligent physician, and myself were discussing the questions involved in his case:—suddenly the eyes and head became fixed; the pupils dilated; the conjunctiva suffused; the cheeks deeply flushed: the little patient was obviously unconscious:—in a moment the spell was broken, the natural colour, the natural look, and consciousness, returned. The muscles which had fixed the head, had compressed the veins of the neck!

124. The doctrine of tendency or determination of blood to the head, is therefore both unfounded in fact and principle, and incapable of explaining the phenomena. Impeded venous return is both in itself the obvious effect of a familiar event, and affords the ready explanation of a subsequent series of events, hitherto unexplained.

10.—*Congestion and Softening of the Brain.*

125. In all cases of the apoplectoid or epileptoid seizure, whether hidden or observed, the cerebrum is congested, the intervening links being trachelismus and phlebismus.

126. If this congestion be extreme, and greater in one hemisphere than the other, hemiplegic paralysis is observed.

127. If the cerebral affection be limited to *congestion*, and if this congestion disappear, the paralysis disappears too. It is paroysmal and transitory.

128. But if this congestion leads to ecchymosis (as we *see* in the face), this cannot subside; *softening* is the result; and, with this, a greater or less degree of permanent hemiplegia.

129. Or there may be effusion of serum into the ventricles, and its consequences—loss of memory, &c.

130. If, with the paralysis, there be spasm (if it be spasmo-paralysis), the medulla oblongata is *irritated*, by pressure or counter-pressure from the tumefied cerebrum.

131. This series of events is of the deepest interest, and presents a new subject of investigation to the pathological anatomist. It will be necessary to trace and distinguish the different links of the chain of cause and effect: the morbid appearances are *not the disease*; they may be the *effect* of one of its sym-

ptoms, and the *cause* of others. They may be intra-vascular and evanescent during life, and therefore absent on the post-mortem examination; or they may become extra-vascular during life, and therefore be detectible by the anatomist.

132. I believe this view of softening, as the result of congestion, to be at once new to the pathologist and deserving of his most serious attention. Mere morbid anatomy, unconnected with the *history* of the case, is like the caput mortuum of the alchymist; it is only of real value when traced backwards to its living cause or causes, and forwards to its effects.

133. The flow of venous blood, on opening the cranium, the condition of the veins in the extra- and intra-cranial tissues, the effusion of serum or of blood, must all be viewed in connection with the chain of morbid processes during life. It is *living* pathology which alone can serve us in relieving the sick.

11.—*The Diagnosis between Paroxysmal and other Attacks of Apoplexy.*

134. There is still no medical topic of such value, and importance, and difficulty, as Diagnosis.

135. Hitherto, I think, the distinction between the different attacks of apoplectic character has only been one of *degree*. But I believe there is an essential difference between the *Threatenings* of apoplexy which

occur and recede paroxysmally, and even the slightest inroads made by organic disease, whether of the arteries, or veins, or membranes, or the substance of the encephalon. Whilst the former are repeated, at first leaving little or no ill effect behind, the latter proceed insidiously, and at last there is perhaps a crushing attack of pain, of pallor, and of apoplexy; or, of hemiplegia;—a large laceration of the substance of the brain and extravasation of blood being discovered on making a post-mortem examination.

136. It must be borne in mind that a first attack may assume the form of paroxysmal apoplexy, the patient recovering speedily and entirely; and yet the second may be of the most deplorable character. In the former case, there are generally turgescence of the face and neck—the effect of trachelismus; in the latter, there is pallor—the effect of *shock*. An interesting case of this kind was recently published by Mr. Dunn, in *The Lancet*.

12.—*The Treatment of Paroxysmal Nervous Affections.*

137 I have already hinted at the difference in the treatment of paroxysmal and of organic apoplexy:

138. It would be a very dubious measure to administer an emetic in the case of a violent attack of apoplexy or paralysis. It is more than probable that

greater congestion, or greater effusion of blood, would be excited by the acts of vomiting.

139. But if the case were one of paroxysmal apoplexy or paralysis, the nausea and sickness induced by a mild emetic would probably dissolve the spasm on the muscles of the neck, and so remove the consequences—the impeded return of the blood along the veins of the neck and head, and the congestion of the encephalon.

140. It is in this manner that the long-continued discussion between Fothergill and Cheyne and other physicians, is to be terminated. There are forms of the apoplectic seizure, for which a mild but effectual emetic is the appropriate remedy; there is another in which the administration of an emetic would not be unattended with the danger of aggravating the disease.

141. The principles of the treatment of the paroxysmal forms of apoplectic, paralytic, and epileptic diseases are indeed totally different from those of the similar diseases of *organic* origin. But I shall have to recur to this important topic.

SYNOPTICAL VIEW OF CEREBRAL AND SPINAL SEIZURES.

I. THE CAUSES.

I. *Centric;*

1. *Emotion, Excitement;*
2. *Sleep; awaking, &c.;*
3. *Posture; Effort; &c.;*
4. *Abnormal Conditions of the Blood; plethora; anæmia; &c.*

} *Catastaltic, or Direct,*

II. *Ex-centric;*

1. *Dental—*
2. *Gastric—*
3. *Intestinal—*
4. *Uterine—*
   1. *Catamenial—*
   2. *Puerperal—*

} *Irritation;* } *Diastaltic, or Reflex,*

II. THE SPINAL SYSTEM.

I. THE MODE OF ACTION.

II. THE MEDIUM OF ACTION.

The Spinal Centre and through

I. *Esodic Nerves, viz.*

1. *The Trifacial—*
2. *The Pneumogastric—*
3. *The Spinal—*

II. *Exodic Nerves, viz.*

1. *The Recurrent—*
2. *The Intercostal—*
3. *The Abdominal—*

1. *The Descendens Facialis—*
2. *The Descendens Hypoglossalis?—*
3. *The Spinal Acccssory—*
4. *The Spinal—*

III. THE MUSCULAR AND VENOUS SYSTEMS OF THE NECK.

I. LARYNGISMUS.

1. *Incomplete—with Stridor; &c.*
2. *Complete—with Efforts of Expiration;*

II. TRACHELISMUS—

1. *Primary and Latent,—*
2. *Secondary and Evident,—contracting*

1. *The Platysma myoid—*
2. *The Cleido-mastoid, the Omo-hyoid, &c.—*
3. *The Trapezius, the Scaleni, &c.—*
4. *The Subclavian—* *Muscles.*

II. PHLEBISMUS.

I. *Special—of*

1. *The External Jugular—*
2. *The Internal Jugular—*
3. *The Vertebral—*
4. *The Subclavian—* *Veins.*

II. *General.*

IV. EFFECTS, SYMPTOMIC AND ORGANIC.

I. THE SYMPTOMS.

1. *Flocci; tinnitus; aura;*
2. *Vertigo; headache; stupor; stertor, laryngeal or nasal;* Paralysis *of Speech, of the Hand, &c.,—* Hemiplegia,— Apoplexy,—*paroxysmal, or permanent;*
3. *Oblivium; delirium; spectra; falling; nutatio; loss of speech;* Cerebral epilepsy;
4. *Spasm; torsion of face, eyes, Neck, limbs; laryngismus; Bitten tongue, lip, or cheek; Convulsion, general or partial; expulsion of urine, fæces, semen;* Spinal Epilepsy; *consecutive stupor, paralysis,* Mania, *or Amentia;*
5. *Pallor, faintness, sickness,* Spinal Syncope.

II. THE MORBID ANATOMY.

Congestion—of

1. *The Face, Eyes, Neck; suffusion, tumidity, lividity, ecchymosis, epistaxis, distended veins;*
2. *The Cerebrum; ecchymosis—red points, or clot; softening; serous effusion; lymph in the arteries;*
3. *The Medulla oblongata;*
4. *The Hand; lividity, tumidity, distended veins.*

V. REACTION—*on*

The Spinal Centre, with augmented Excitability and Susceptibility to Returns.

VI. PREVENTION, TREATMENT—

consisting in

1. *Avoiding the Exciting Causes;*
2. *The Substitution of Sickness;*
3. *Removing augmented Excitability;*
4. *Removing Congestion;*
5. *The use of Specific Remedies?*

(To face page 35.)

LECTURE II.

RATIONALE; SYNOPTICAL VIEW; ETC.

GENTLEMEN,

142. In the present Lecture I propose to lay before you a more *connected* view of the chain of causes and effects, in the cases of paroxysmal apoplexy, of epilepsy, &c. than in my former one. I beg your especial attention to this *Table* or *Synoptical View* of those events.

143. It will be remembered that, in these Lectures, I leave out of view entirely all originally organic diseases of the encephalon or spinal marrow. My subjects are the paroxysmal diseases of the cerebral and spinal systems.

144. In the first column in this *Table*, I have enumerated the exciting *causes* of these paroxysmal affections; causes, some of which act directly, and others in a reflex or diastaltic manner, in regard to

the spinal centre. Of the former class, are *Emotion* and mental excitement principally; of the latter, the *Irritations.*

145. Why these causes should select the muscles of the neck and throat principally for the display of their influence, is a mystery; but it is not the less a fact that they do so. I have already remarked, I think, that *Expression* is as much *seen* in actions about the throat as in the countenance, whilst the effects of emotion are *felt* in that susceptible region.

146. The effect of *Sleep*, again, is still manifested in the same region, though less directly. Volition being removed, the muscles of the neck are delivered over, like the orbicularis, to the influence of *tone*—a spinal action, as proved by the experiment on the turtle, of withdrawing the spinal marrow and watching the effect in relaxing the sphincter. The result of this trachelismus is a *sub*-apoplexy, and the disposition to paroxysmal seizures. I have this day seen a patient who occasionally experiences an attack of a suffocative character, with a sense of constriction about the throat, on falling asleep. See § 66. Another patient was liable to awake in a state of confusion, and this confusion, on one occasion, lasted for many minutes. This is, in fact, a species of *Oneirodynia.*

147. The other causes enumerated in the first part of the first column, act also directly upon the medulla oblongata, and thence on the muscles of the throat and neck.

148. The Irritations act in a reflex or diastaltic manner. Sometimes there is a feeling of constriction or of 'a spike' (for so it has been expressed) about the throat or neck; sometimes there are, sooner or later, sickness and vomiting; the latter of which involves closure of the larynx. In other instances there are flushing, vertigo, headache, and other threatenings of apoplectic or paralytic seizure; or, perhaps, of a seizure of an epileptoid character; facts, all of which may now, I think, be adduced as proofs of the existence of trachelismus, to which laryngismus, trachelismus in other form, is so apt to be conjoined.

149. The irritations act through the medium of incident or *Esodic* nerves; viz. the trifacial, in the case of teething; the pneumogastric, in that of gastric irritation; and the spinal, in those of irritation of intestinal or uterine origin.

150. The irritations of these nerves are, by a mysterious agency, diastaltic through the medulla oblongata, and thence through certain *Exodic* nerves upon the muscles which they supply, and specially upon those classed in this part of my *Table;* viz. the recurrent, the intercostal, the abdominal; the descendens facialis, the descendens hypoglossalis, the spinal accessory, and the other spinal nerves.

151. The course of action along these nerves is traced in its effects on special muscles. These are arranged in *this* column. They are the muscles which close the larynx, and the muscles of the neck,—espe-

cially the platysma myoid, the cleido-mastoid, the omo-hyoid, the trapezius, the scaleni, the sub-clavian.

152. As proofs of these actions, I must here adduce some most interesting facts:

153. For the first of these I am indebted to J. Russell Reynolds, Esq. to whose talents I have already paid a well-merited tribute of praise, at page 25. He states, in a note addressed to me in June 1849,—"I have been watching, with great interest, during the last five days, a case of Epilepsy, in University College Hospital. The patient, a stout woman, aged twenty-six, was brought in early on the morning of June 1, in a fit. She had several attacks before I saw her, which was about half-past ten, a. m. She was then lying very restlessly, her face a little flushed, and some convulsive twitches were playing around the mouth. I placed my finger on the *omo-hyoid* muscle, which I could at times see distinctly in the 'posterior triangle' of the neck. It contracted and relaxed several times under my finger; then some of the surrounding muscles were strongly contracted, and a general, but not severe, convulsion followed. There was *total loss of consciousness*, but *not* any great *turgescence of the external veins.*

154. Two days after this, I was again watching her. She had had several severe attacks in the night; and there were now the same convulsive twitches of the muscles of the lower part of the face. I placed my finger in the direction of the omo-hyoid muscle,

but could not distinguish it. As I was doing this, the *platysma myoides* contracted violently; its fasciculi stood out in full relief; it was exceedingly rigid; *the veins of the neck became much distended, the face deeply livid;* the surrounding muscles of the neck were *then* strongly contracted, the thorax was drawn towards the head, and the general convulsion which followed was one of the most violent I have ever seen."

155. For the next case I am indebted to W. J. Bryant, Esq. of Bathurst Street. I give his graphic sketch in his own words:

156. "Jane D. aged 82, has been under my care for the last fourteen years. For many years she was severely attacked with bilious sick-headaches, of an agonizing character. The attack was always accompanied by severe bilious vomiting. This state of things continued for a year or more, when, during an attack of vomiting and headache, she was seized with a mixed character of fit (apoplectic epilepsy), which more particularly attacked the left arm and leg, and the left side of the face, the tongue being wounded. The fit passed off, and was succeeded by a profound sleep. I have now seen her so attacked twenty-eight times. She has diminished power of the left hand and arm after each attack.

157. "The last attack was very severe, the patient being insensible and unable to swallow. Having occasion to apply a mustard plaster to the nape of the neck, I was struck by observing the peculiar manner

in which the skin of the neck was drawn, as it were, into a band. *I could distinctly observe this band arresting the flow of blood through the external jugular vein, which, with the veins of the face of the left side, was turgid*, and, in one part, dilated into a *varix*. To ascertain whether this band was influencing the circulation, I raised it up, and immediately the veins emptied themselves, and the patient was able, for the first time, to reply to a question from me. My patient being of a very spare habit, I had an excellent opportunity of witnessing the remarkable part which the muscles of the neck were playing. The genio-hyoid, the omo-hyoid, the sterno-cleido-mastoid, and the platysma, were prominently shown and rigid.

158. "The difficulty of swallowing and the insensibility were greater in this attack than usual; but they are always present, more or less, in all.

159. "I had written this, and from circumstances had been prevented further detail, when I received a summons to visit my patient, who was again in convulsions. Upon my arrival, I found my patient but slightly attacked. There were twitches of the muscles of the face, side, and leg, and a slight difficulty in swallowing; the face, as usual, was suffused, the veins slightly turgid, and, to my satisfaction, I found the same band of skin raised by the contraction of the *platysma;* and it was now that I was able at once to arrest the phenomena of convulsive action, by raising

the band. The paroxysm ceased almost immediately. The omo-hyoid was not so distinct; but still it was prominent. In fact, viewed as a whole, it was an admirable natural dissection of the triangle of the neck."

160. An interesting case, in which there was contraction of the omo-hyoid, was communicated to me by T. A. Henderson, Esq. of Portman Place, Edgeware Road:

161. "Miss H. aged 67 or 68, was attacked, nearly four years ago, with symptoms of commencing apoplexy, which subsided, but left the left leg and arm very weak, and liable to very constant and peculiar muscular action—the great toe of that foot being painfully drawn away from the others, and the left arm being in a tremulous, twitching condition almost continually, and much weaker than the other. I must remark that all these symptoms were much better when the patient was recumbent. The head has been lately drawn downwards and to the left side, and she *feels* a *pulling* in the throat on that side. On putting the fingers along the lower part of the neck, the *omo-hyoid* can at times be felt twitching and drawing—in fact, in a kind of irregular spasmodic action; just as the tendons of the muscles of the arm can be felt at the wrist of the left arm, and indeed, lately, of the right arm also, twitching and catching in a very irregular manner. I should also add, that these symptoms are at times much less violent, varying with the state of the general health; but never entirely absent.

When they are severe, I have remarked that pressure on the omo-hyoid causes pain, and sets up the same spasmodic action and pain in other parts, as the great toe of the left foot, the back of the neck, &c. Pain is also at such times felt in the anterior portion of the trapezius muscle, which I once or twice thought I could feel in the same irregular state of action as the other muscles."

162. In a case of epileptoid seizure, I had, some time ago, an opportunity of observing the clonic contractions of the *omo-hyoid*, with my friend Mr. Martin.

163. The late Professor Gregory used to mention, in his Lectures, the fact of a man who, being in a boat, and suddenly turning his head to look at an object in the opposite direction, fell down apoplectic.

164. One patient, subject to epileptic attacks, cannot turn her head extremely to the left side without a strange feeling of vertigo, or confusion, or threatening of a seizure. A similar position of the head turned towards the right side produces no such effect. The phenomenon is obviously the effect of the action of certain muscles and the compression of certain veins.

165. These facts are sufficient for illustration. The subject is proposed for investigation; for it is new, and still insufficiently explored.

166. The subject of the anatomy and physiology of trachelismus, with its *varied* effects on the circulation, and on the functions of the face, neck, encephalon, and medulla oblongata, will require years of cautious observation. § 168.

167. Of the influence of compression of the veins of the neck in inducing apoplectic symptoms, we have an example in a case of Sauvages, quoted by Abercrombie*:—"A man, after execution, was recovered by three bleedings, and sat up and talked, his breathing and deglutition being natural. After a short time, the part of his neck where the cord had been applied began to swell, so as evidently to impede the circulation in the veins of the neck; he then became drowsy, his pulse and respiration slow, without dyspnœa, and in a few hours he died apoplectic."

168. In blushing and flushing, in the suffused and blood-shot eye, in ecchymosis, in epistaxis, we have the effect of impeded return of blood along the external jugular; in apoplectic symptoms, we have the evidence of impeded return of blood along the internal jugular; in epileptoid symptoms, we have the same evidence in regard to the vertebral. At least, this I believe to be true in general terms. These points must be submitted to cautious *observation and experiment.*

169. The transition of congestion into ecchymosis, and of this into softening, as displayed in this column of the *Table*, is also a further subject for careful investigation, equally new and important.

170. In the succeeding column another topic is noticed. It is the susceptibility or tendency left by previous attacks, to subsequent attacks of the same

* Op. cit. p. 202.

character. The nature of this may be either of a nervous or vascular character, or both,—that is, there may be either *nervous or vascular exhaustion and reaction.* Time, and the avoiding of the exciting causes, and tonics, and especially such a tonic as will act on the spinal marrow, appear to me to be means of cure.

171. These remarks illustrate the last column of the *Table*, in which I have enumerated the principles of treatment of paroxysmal seizures.

172. To remove and avoid the causes; to avoid the obstacles to the cure, by regulating all the functions; to restore the due tone of the system; are our great objects.

173. Now there comes a question as to any specific remedy; and, in this respect, it becomes a question whether strychnia, which we know to possess the power, in large doses, of singling out and *stimulating* the centre of the spinal system, would, in minute doses, act as a *tonic* upon this organ specially—an event which, from some cautious trials, I think probable. It would present us with an example of a *Spinal Tonic.*

174. A second question is not of less interest. Might sickness and vomiting be so timeously induced, as either to anticipate or supersede the paroxysmal seizure? Such a seizure is frequently terminated by a fit of vomiting. If there were any premonitory circumstances or symptoms, might not an emetic ward off the coming attack? Are sickness and vomiting

compatible with the paroxysmal apoplectic or epileptic threatening?

175. Lastly, do the new principles which I have unfolded lead to any other modes of prevention or treatment?

176. I could give a goodly list of cases which have been brought, by dietetics, by mental and physical regimen, and by the remedies and means to which I have adverted, to a happy issue. But time, and patience, and steadiness of purpose, are required in the physician, in the patient, and in the patient's friends; and many are the disappointments in the course of the case which may yield to your efforts favorably at last. The susceptibility to attacks may be extreme; exposure to the exciting causes scarcely to be avoided.

177. The first link in this extraordinary chain of causes and of effects is a cause either of direct or catastaltic, or of reflex or diastaltic, action; this cause acts through the spinal system upon the muscles of the throat and neck, and perhaps of the larynx; these upon the veins of this region; congestion of the *intermediate* blood-channels, intermediate between the last arterial branches and the first venous roots, and congestion and perhaps ecchymosis, of the exterior or interior parts of the head, take place!

178. In all this chain, each link is essential and the series complete! Is it not a unique instance of a living pathology so traced, and of the practical appli-

cation of a physiological discovery? And how does it call forth our knowledge of anatomy!

179. Indeed, I propose to seize the opportunity of again dissecting *The Neck*, regarded as a *Medical Region*, with peculiar care. The nerves, esodic and exodic, the muscles, the veins, must be displayed; and their relative actions should be traced in a series of well-devised experiments and cautious observations.

1.—*The Relation of Apoplexy, Paralysis, Epilepsy, and Mania.*

180. The patient affected with paroxysmal apoplexy sometimes becomes epileptic. The epileptic patient, on the other hand, sometimes experiences attacks which gradually assume the more apoplectic character. The fit of apoplexy is sometimes attended with convulsion, as observed by Abercrombie*. The fit of epilepsy usually terminates in an apoplectic stupor, and this sometimes in mania.

181. Both the apoplectic and the epileptic seizure are equally prone to issue in hemiplegic paralysis. This event is both more frequent and more apt to be permanent in the former case than in the latter; and, I believe, for this reason:—The cerebrum is more congested in apoplexy than in epilepsy, though it *is*

* Op. cit. p. 203-4.

affected in both. Epilepsy is more apt to become complicated with spasmo-paralysis than apoplexy, for a similar reason: the medulla oblongata is more affected in the former disease than in the latter.

182. The apoplectic and especially the epileptic seizure is apt to pass into stupor or mania; and, in the case of *hidden* seizure, it may be very difficult to form an accurate judgment of the nature of these events.

183. Heberden, whom I have so often quoted, observes—"Modo insania et paralysis eundem vicissim occupaverunt. In nonnullis epilepsia tam prope abest a paralysi, ut difficile dictu sit ad utrum morbum signa sint referenda." And—"Inter plurima autem mala, quæ secum ferunt affectus apoplectici, aliquid inde boni semel visum est oriri: nam epilepticus quidam, attonitus factus, deinde revixit, et veterem suum morbum nunquam postea expertus est. Contra, aliis contigit, ut ex hemiplegia assurgentes, tum primum cœperint cum epilepsia conflictari*."

184. Every fact leads to the inevitable conclusion, that the apoplectic, paralytic, epileptic, and maniacal affections are allied intimately together.

185. The same remarks relate to puerperal cases: convulsion, apoplexy, paralysis, mania, are so linked together, that they may not only occur singly, but in various succession, before, during, or after, parturition.

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* Op. cit. pp. 287; 297.

The difference is, in reality, but the difference of vein principally compressed.

186. In one lady, the subject of repeated epileptic seizures, these assumed gradually more and more of the apoplectic character, until one terminated fatally and suddenly. On a post-mortem examination, the integuments of the face were of "a dark blue colour," dark blood flowed on dividing the scalp and separating the dura mater; the sinuses of the veins on the surface of the brain were gorged with dark-coloured blood; the substance of the cerebrum was healthy, but greatly congested. The vertebral arteries presented "a pouchy appearance." There was a fatty heart.

187. In a gentleman, several epileptic seizures occurred, the effect of *fear*,—the fear of cholera. After each, a hemiplegic paralysis of the *right* side took place; but this yielded completely, except that the patient could never divert his mind from the idea that the feeling of the affected side was somewhat different from that of the other. At length a further attack proved fatal; and, on a post-mortem examination, the arachnoid was found slightly opaque, the ventricles containing serum, whilst in the *left* corpus striatum there was the remnant of a small clot of blood, in a cyst slightly discoloured. The arachonoid was raised in one spot by serum, resembling a vesicle, and a small cyst was attached to the plexus choroides.

188. In both these cases, the arteries at the base of the brain contained a little opaque fibrine;—the

effect of the seizures and of impeded flow of blood along their course?

189. Every day brings forth some new illustrative fact. For the following sketch I am indebted to W. F. Barlow, Esq. of the Westminster Hospital:—"A woman, 38 years of age, who had been some time labouring under chronic bronchitis and a laryngeal affection, which was occasionally aggravated by spasm, was one day seized with a violent spasmodic action of the glottis, in which she appeared nearly suffocated. It relaxed, and she recovered, without ill consequence; but shortly afterwards she was attacked with another such spasm, on the subsidence of which, the left side of the face, the left arm, and the left leg, were found completely *paralysed*. The patient was going on, to all appearance, very well, when she was seized with an *apoplectic* fit, and speedily died."

2.—*Of Paroxysmal Diseases of the Cerebral and Spinal Systems, as a Class.*

190. In concluding this Lecture, I may observe that I am persuaded that I have stated enough of fact to effect the establishment of a *Class* of paroxysmal diseases of the nervous system, each and all of which involve an excitant of diastaltic action, on muscles of the neck, and compression, by these, of the veins of that region, and the consequent congestion of the tissues

without or within the encephalon and spinal cavity, perhaps with ecchymosis or softening, or serous effusion.

191. These events are variously translated into apoplectic, paralytic, epileptic, syncopal, or maniacal seizures, which constitute the *Class* of Cerebral and Spinal Paroxysmal Affections.

192. In some instances, the *first stage* of these seizures is *hidden ;* in others, the seizure assumes the form of *Oneirodynia ;* in others again, it is mere blushing, ' sick-headache,' ' sick-giddiness,' &c.

192. What a momentous subject for fresh inquiry !

193. In our daily visits to the sick, our first duty is to establish an accurate *Diagnosis.* Diagnosis, in these diseases, is unfortunately not of the physical kind, as in diseases of the thorax, but the interpretation of symptoms. In this manner it is that the *physiology* of the nervous system and the *diagnosis* of its diseases, meet and coalesce. And yet the physiologist is still calumniated by the ' mere practical man,' that is, the empiric, as a *theorist.* Such is still the deplorable condition of our profession !

LECTURE III.

DIAGNOSIS; CASES; TREATMENT.

GENTLEMEN,

194. In this concluding Lecture I propose to illustrate my subject quite practically, and by the detail of a few *Cases*, with such observations as they may suggest, and with special reference to the diagnosis and treatment.

195. The basis of all scientific medicine is—the *Diagnosis.* The next steps are the physiology, the living pathology of the disease; and the next, the therapeutics.

1.—*Apoplexy and Paralysis.*

196. The great question, in regard to the diagnosis of apoplectic and paralytic seizures, is that of their Inorganic or Organic character, primary or secondary.

197. I consider that form of apoplexy or paralysis which arises from emotion, or irritation, as primarily *inorganic*. That form of these affections which arises out of disease within the encephalon, and especially from rupture of the substance of the brain, of course, as *organic* in its character.

198. The former of these is characterized by varied flushing of the countenance, and perhaps of the neck, and by various symptoms, such as headache, vertigo, loss of consciousness; loss of the power of speech or of the hand; or more decided apoplexy or hemiplegia. Of this kind of attack there is every variety, every degree, every duration from the most transitory to the permanent, every kind of recurrence and remission. It may be slight and transitory, and recurrent during many years. It may lead to organic apoplexy or paralysis. It may prove fatal even, in any of its attacks, early or late.

199. I now beg, Gentlemen, to lay before you another extract from Abercrombie, which I consider as amongst the most important in medical writings—a sufficient apology, I hope, for its length;

200. "The apoplectic attack is generally preceded by symptoms indicating some derangement of the circulation in the brain. The most remarkable of these are the following:—headache, giddiness, sense of weight and fulness in the head, violent pulsation of the arteries, and confused noises in the ears. These symptoms are often accompanied by *epistaxis*, which

may give a partial and temporary relief; by loss of recollection, and incoherent talking, resembling slight intoxication; by affections of the sight, double vision, and temporary blindness; by drowsiness and lethargic tendency. We also frequently observe *indistinct articulation*, and other *partial paralytic* affections. These are sometimes confined to one limb, or part of a limb; sometimes affect the eyelids, producing inability either to shut the eye, or to open it; and frequently impair the muscles of the face, producing a slight distortion of the mouth. These symptoms, and others of a similar kind, mark the *tendency* to the apoplectic state, and often appear for a considerable time *before* the attack actually takes place. The attack itself occurs chiefly under three distinct forms, which it is of importance to distinguish from each other.

201. "I. In the first form of the attack, the patient falls down suddenly, deprived of sense and motion, and lies like a person in a deep sleep; his face generally flushed, his breathing stertorous, his pulse full, and not frequent, sometimes below the natural standard. In some cases *convulsion* occurs, in others *rigid* contraction of the muscles of the extremities; and sometimes contraction of the muscles of the one side, with relaxation of the other. In this state of profound stupor, the patient may die after various intervals, from a few minutes to several days; or he may recover perfectly, without any bad consequence of the attack remaining; or he may recover from the coma, with

paralysis of one side. This paralysis may disappear in a few days, or it may subside gradually, or it may be permanent. Other functions, as the speech, may be affected in the same manner, being speedily or gradually recovered, or permanently lost; and recovery from the apoplectic attack is sometimes accompanied by loss of sight.

202. "II. The second form of the disease begins with a sudden attack of pain in the head; the patient becomes pale, sick, and faint; generally vomits, and frequently, though not always, falls down in a state resembling syncope; the face pale, the body cold, and the pulse very feeble. This is sometimes accompanied by slight convulsion. In other cases, he does not fall down, the sudden attack of pain being only accompanied by slight and transient loss of recollection. In both cases he generally recovers in a few minutes from the first effects of the attack, is quite sensible and able to walk, but continues to complain of headache; after a certain interval, which may vary from a few minutes to several hours, he becomes oppressed, forgetful, and incoherent, and then sinks into coma, from which he never recovers. In some cases paralysis of one side occurs, but in others, and I think the greater proportion of this class, no paralysis is observed.

203. "III. In the third form, the patient is suddenly deprived of the power of one side of the body, and of speech, without stupor; or if the first attack be accompanied by a degree of stupor, this soon disap-

pears; he seems sensible of his situation, and endeavours to express his feelings by signs. In the farther progress of this form of the disease, great variety occurs. In some cases, it passes gradually into apoplexy, perhaps after a few hours; in others, under the proper treatment, the patient *speedily* and *entirely* recovers. In many cases the recovery is gradual, and it is only at the end of several weeks or months that the complaint is removed. In another variety, the patient recovers so far as to be able to speak indistinctly, and to walk, dragging his leg by a painful effort, and after this makes no farther improvement. He may continue in this state for years, and be cut off by a fresh attack, or may die of some other disease without any recurrence of the symptoms in his head. In a fifth variety, the patient neither recovers, nor becomes apoplectic; he is confined to bed, speechless and paralytic, but in possession of his other faculties, and dies gradually exhausted, without apoplexy, several weeks or months after the attack.

204. "These three forms of disease frequently pass into one another; but they are very often met with, as they are here described, forming affections which differ remarkably from each other; and they appear very naturally to arrange themselves into the three classes which have here been referred to;—first, those which are immediately and *primarily apoplectic;* secondly, those which begin with a sudden *attack of headache*, and pass gradually into apoplexy; thirdly,

those which are distinguished by *palsy*, and loss of speech, without coma*."

205. It is obvious that the form of seizure described in the *first* of these paragraphs, is the *paroxysmal*, and that it may be *apoplectic* or *paralytic*.

206. It is not less obvious that the attacks described in the *second* and *third* paragraphs are alike in their *organic* origin, that of the former being *apoplectic*, that of the latter *paralytic*.

207. There ought then to have been, *not three* paragraphs, but either *two* or *four;* and such is the division I would propose. Thus cerebral seizures may be divided into

1. *The Paroxysmal*, and
2. *The Organic;*

and each of these may be subdivided into

1. *The Apoplectic*, and
2. *The Paralytic;*

whilst each of these may present itself in the form of

1. *The slightest Threatening*, or
2. *The severest Seizure.*

208. Paroxysmal cerebral seizure is for the most part distinguished by the flushing of the countenance, the recurrent form of the seizures, the partial nature of these, &c. &c whether they be apoplectic or paralytic, and the absence of *severe pain of the head.*

209. The organic cerebral seizure is generally

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* Op cit. p. 203—5.

denoted by pallor of the countenance, faintishness, sickness, sometimes with *severe pain of the head.* This kind of attack is generally severe, and the apoplexy and the paralysis are comparatively little under the control of remedies.

210. In the paroxysmal seizure there is little of the appearance of *shock ;* in the organic, the shock is frequently extreme, and traced in the condition of the countenance, the general surface, the pulse, &c.

211. In the case to which I have already referred, published by Mr. Dunn, the first attack was of the paroxysmal kind ; the second was obviously of the organic character. And thus it is obvious that the *effect* of a paroxysmal seizure to-day, may prove the *source* of an organic seizure to-morrow.

212. The great and real distinction between paroxysmal and organic apoplexy and paralysis is this :— in the former, the condition of the encephalon is first one of congestion, and afterwards of ecchymosis, rupture, softening ; in the latter, the condition of the encephalon is one of organic disease, rupture, and compression ;—with their respective consequences on the functions of the nervous system ; apoplexy or paralysis being the effect of the congestion, or of compression, general or partial, and transitory or permanent like their cause ; and paralysis, of congestion or of rupture or softening, and transitory or permanent like its cause.

213. Abercrombie speaks of paroxysmal apoplexy

as "simple" or "primary," and of the organic as "not primary," and as "accompanied with exhaustion." Of the latter he says—"They are not at first apoplectic; or, if there be at the very first attack loss of sense and motion, this state is recovered from in a few minutes, or perhaps seconds, without any remedy. The prominent symptom, at the commencement of the disease, is a sudden attack of violent headache, the patient often starting up and screaming from the violence of it. Sometimes he falls down, pale, faint, and exhausted, often with slight convulsion, but recovers from this state in a very short time. In other cases he does not fall down, but feels a sudden and great uneasiness in his head, generally with paleness, sickness, and often vomiting. The first attack being so far recovered from that the patient is often able to walk home, the symptoms go on under various modifications. The fixed pain in the head generally continues, often referred to one side of the head; and generally there is vomiting. The patient continues for some time, perhaps an hour or two, cold and feeble, with cadaverous paleness of the countenance; his pulse weak and generally frequent. He is quite sensible, but oppressed. By degrees he recovers heat and the natural appearance of the countenance, and the pulse improves in strength. The face then becomes flushed; he is more oppressed; he answers questions slowly and heavily; and at last sinks into coma, from which he never recovers." And—"As far as my observation extends,

the cases which belong to this class are generally fatal. They form a modification of the disease, remarkably different from the simple apoplectic state; and, on inspection, we find none of those varieties and ambiguities which occur in the apoplectic cases, but uniform and extensive extravasation of blood. From the whole history of them, I think there is every reason to believe, that they depend upon the immediate rupture of a considerable vessel, without any previous derangement of the circulation, the rupture probably arising from disease of the artery at the part which gives way. At the moment when the rupture occurs, there seems to be a temporary derangement of the functions of the brain; but this is soon recovered from. The circulation then goes on without interruption, until such a quantity of blood has been extravasated as is sufficient to produce coma*."

214. Cheyne observes—"I have never known a patient recover, who, in the beginning of the attack, complained of sudden pain in the head," &c.†

215. There are then paroxysmal and organic apoplexy. How essential that the *diagnosis* should be vividly impressed on our minds!

216. The following case, for which I am indebted to Mr. Coates, of Salisbury, is full of interest, as displaying some feelings and appearances of trachelismus with cephalic symptoms:

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* Op. cit. pp. 218; 219.

† Cases of Apoplexy and Lethargy; 1812; p. 13.

217. "A gentleman, aged about 70, of full habit, and having suffered from hæmorrhoïds, with occasional loss of blood, and from gout, sustained a severe affliction in the loss of his son. He became liable to awake in the night with a suffocative feeling in the throat, making a peculiar noise. In the day too he was subject to giddiness, with a slight cloudy appearance before the eyes, and a sense of tightness about the throat.

218. "He had, at the time of this report, frequent headache and giddiness, and dimness of sight; his neck was thick, the external jugulars and the temporal arteries prominent."

219. I extract the following important case from the useful work of Dr. Cheyne* :

220. "August 26, 1804. Mr. A——n, æt. 65. I was called to visit this gentleman, in lodgings, at Bath Street, where he was residing for the convenience of sea-bathing, which he had been advised to use for some weeks. He had dined in Edinburgh, and had afterwards walked home. On his arrival, his daughter observed only that he was exceedingly flushed and warm, and that he was perspiring very copiously about the head and face. While she was preparing some drink for him, he fell from his chair insensible. On my arrival, he was laid in bed, his head and shoulders supported by his wife, and my father in the act of

* Op. cit. p. 94.

bleeding him. The state of apoplexy was complete, and unequivocal: the respiration was deep and sonorous, and the pulse was slow and full. *His face was flushed*, or rather *livid*, for he was a big and corpulent man, with a thick short neck, and the superadded signs of a bon vivant. The blood flowed freely from a large orifice; and, as the fourth cup was nearly filled, our patient became sick, and vomited very freely the half-digested remains of a plentiful dinner. Shortly after this, our patient opened his eyes, and turned round his head; and after two hours, he seemed nearly completely recovered. His wife and daughter were much less surprised than we were, for this was the gentleman's *third* attack of apoplexy; and the former fits had also terminated by vomiting. After the first attack, the right arm continued paralytic for twelve weeks, but gradually recovered, after a course of sea-water bathing.

"(Signed) GEORGE KELLIE, M.D."

221. In the treatment of the apoplectic and paralytic attack, the great questions relate to the administration of blood-letting and emetics.

222. In the decided paroxysmal seizure, our practice may be, and ought to be, energetic. We should promptly take away blood, and we should induce sickness and vomiting.

223. If the attack be slight and repeated, an antacid aperient draught, properly repeated, may be all

that is immediately required. If it be severer, an emetic with an antacid should be first given, and then an antacid aperient. If severer still, bloodletting, by cupping or by venesection, must be premised.

224. In the midst of these measures, the head should be raised, a cold lotion applied to the crown of the head, sinapisms behind the ears and to the nucha, and fomentations of the feet, and an enema should be administered.

225. Afterwards, the tenth part of a grain of the chloride of mercury, two grains and a half of the pilula hydrargyri, and half a grain of squill and of ipecacuanha, should be given thrice a day.

226. But, in organic apoplexy or paralysis, it may be a question whether we should take blood; but there can be no question in regard to the administration of emetics.

227. The propriety of bloodletting and its measure, must depend upon the state of the pulse and of the patient generally. The condition of the pulse must be ascertained as the blood flows. Sometimes its strength improves, and then we venture to proceed. On having taken what is deemed the due quantity of blood from the arm, we may prescribe cupping behind the ears, or at the nucha.

228. Emetics ought, I believe, and for the reasons stated, to be avoided.

229. The other remedies are those which have been already noticed as proper in the other form of apoplexy or paralysis.

230. The cupping instrument applied to the nucha, making crossed incisions, but taking very little blood, presents us with a very efficacious mode of counter-irritation.

2.—*Epilepsy, and Epileptoid Affections.*

231. The epileptoid or epileptic seizure is still more distinctly characterized by trachelismus. In some cases the whole attack consists in a fixed state of head and eye, dilated pupil, and a deep flush. In other instances, unusual flushing of the face, with suffusion of the eye or eye-lid, is the forerunner of a decidedly epileptic seizure. Every thing tends to prove that the earliest effect, whether in apoplexy or epilepsy, is a state of trachelismus.

232. In the slighter forms of these maladies, there is, in reality, *no* difference. The threatening of apoplexy is so far spasmodic, that is, *spinal*, that it consists in trachelismus with its effects on the countenance and encephalon; the *petit mal* has even been designated *cerebral*, from its principal symptoms. The condition of the countenance and of the brain is identical. I repeat, there is no difference. The real difference between apoplexy and epilepsy is only seen in their severer forms. It is then that, whilst apoplexy is only attended by the simpler trachelismus, in epilepsy, to this simpler trachelismus is superadded an-

other form or degree of the same affection, with all the peculiarity it induces, laryngismus, and, in its train, it may be, odaxismus, or the—trachelismus, shall I call it?—involved in the *bitten tongue*. Now it is that, whereas the further phenomena in apoplexy are *cerebral*, those in epilepsy are *spinal*.

233. The first stage or first degree of both apoplexy and epilepsy consists then in trachelismus,—a spasmodic or spinal action, manifested in its effects on the venous circulation of the countenance and of the encephalon. The second stage or degree of these maladies, is augmented cerebral affection in the former, of spinal affection in the latter; the difference consisting in the different forms assumed by the trachelismus, or of the muscles contracted, and of the veins compressed and obstructed. If these muscles are those which compress the jugulars, the case is apoplexy; but if they are those which compress the vertebrals, and close the larynx, it is epilepsy! At least, I have not been able to resist the train of thought which has forced itself upon me, and which I lay before you with the utmost frankness, trusting to you to give it your most candid consideration.

234. Both paroxysmal apoplexy and epilepsy are, then, first *spinal* or spasmodic, only in different degree and extent; both become *cerebral*, both leading to *coma* and, it may be, to *paralysis*; both terminating, occasionally, in *mania* or *amentia*. See § 183.

235. Gentleman, I commend these views at once

to your indulgent consideration. I am persuaded I have taken a real step in the pathology of these dire and herculean affections. But if I have failed, I have failed in that which the celebrated Esquirol, after a life devoted to the subject, declared to be impossible!—" Les symptomes de l'épilepsie sont tellement extraordinaires, *tellement au dessus de toute explication physiologique ;* les causes de cette maladie sont tellement inconnues, que les anciens ont cru qu'elle dépendait du courroux des dieux*."

236. The great fact is — that trachelismus, a spasmodic affection of the muscles of the neck, is the first, or rather the second, link in the chain of actions which lead to paroxysmal apoplexy or paralysis, or mania, as well as epilepsy and the epileptoid affections.

237. I think I need not insist further on this fact, so important in the pathology. And it is precisely the same fact which leads us into the true path of treatment.

238. May a fit of sickness and vomiting, timeously induced, be made to anticipate and supersede, and take the place, as it were, of a fit of epilepsy? How full of the deepest interest is this momentous question!

239. And then there is another question—When ought this emetic to be given?

240. There are, I believe, two periods when this

* Les Maladies Mentales, tome i, p 274.

is proper. The first, is when an attack is imminent, as ascertained by premonitory signs; the second, when, without premonitory signs, we may be anticipating the attacks generally.

241. Another remedy of great moment, which may or may not be combined with the emetic, is a large dose of antacid, as twenty or thirty grains of the bicarbonate of potass.

242. Both emotion and gastric irritation are apt to induce excessive secretion of the hydrochloric acid in the stomach; and this, I suspect, is a frequent cause of attack. This cause is effectually removed by the antacid, which should be administered whenever any symptom, nervous or gastric, seems to call for it.

243. A rigid system of mental discipline, of diet, of gentle exercises, of attention to the alvine and the urinary secretions, and early hours, must be combined with these and any other remedies that may be deemed proper.

244. One of these, from which I think I have seen benefit, is the acetate of strychnia. The important question to determine is—what is the *tonic* dose of this remedy? I believe it has been generally given in a dose which is *stimulant*, and therefore injurious. From many trials, I am led to propose the fiftieth part of a grain, given thrice a day, as the proper dose as a tonic, and in cases of nervous exhaustion and susceptibility, and to propose the following *formula:*

℞ Strychniæ Acetatis, gr. i.
Acidi Acetosi, m. xx.
Alcoholis, f ʒii.
Aquæ distillatæ, f ʒvi. Misce.

Ten drops of this solution contain the medium dose of the remedy.

245. In all cases of what may be justly designated nervous exhaustion,—the effect of mental harass, of physical fatigue, of sexual excesses,—this remedy appears to me to be of great promise. And the susceptibility to paroxysmal seizures, at once their effect and their cause, is of this nature.

3.—*On Spasmo-Paralysis, and its Diagnosis.*

246. The *attack* of apoplexy or hemiplegia is sometimes complicated with convulsion or spasm;

247. The attack of epilepsy or convulsion sometimes leaves paralysis.

248. These two cases of spasmo-paralysis require to be accurately distinguished from those of pure spasm and pure paralysis. The former of these is, of course, spinal; the latter may be either purely cerebral or purely spinal; but spasmo-paralysis may be either spinal or cerebro-spinal. When the spasmo-paralysis is distinctly *hemiplegic*, I think it always involves both the cerebrum and the spinal centre.

249. When hemiplegia is complicated with convulsion or spasm, either in the attack or afterwards,

the cause of the hemiplegia—generally softening or rupture of the opposite hemisphere—is either complicated with such *tumefaction* as to affect the medulla oblongata by pressure or counter-pressure, or with arachnitis, with effusion at the base of the brain, affecting the medulla oblongata. In one deeply interesting case of this kind, the hemiplegia presented an exception to the general rule of augmented irritability in the paralytic limb. Whether this fact will be found in other cases of this kind, I do not yet know. But if it should, it will at once indicate a peculiarity in the pathology; for the paralysis must be more or less spinal, and suggest the diagnosis.

250. This last question applies to the case of paralysis left by the convulsive or epileptic seizure. Is it *spinal?* Is it attended by diminished irritability of the muscular fibre?

251. The attacks of paralysis which we so frequently observe in children, and refer to dental, or gastric, or enteric irritation, require special investigation in this respect.

252. The hemiplegia observed after the epileptic or convulsive seizure is sometimes entirely dissipated. In one case this event occurred after repeated seizures, the hemiplegia being rapidly evanescent in each. In another case, the hemiplegia, after severe epileptic or convulsive seizures, seemed, like those seizures themselves, of the most hopeless kind; yet it disappeared so entirely, that the patient, a seal-engraver, has re-

covered the perfect use of his fingers, as of the arm and leg.

253. The questions are—whether there be mere irritation or organic change;—whether there be mere intra-vascular, or extra-vascular derangement.

254. These two forms of spasmo-paralysis are strictly connected with the subject of these Lectures—paroxysmal seizures. But there are others which belong to a more extensive view of the subject, to which I can, of course, only advert in a few words.

255. First, chronic hemiplegia is apt to become complicated with spasm, the effect of *tone*, the acts of volition being suspended. This is generally seen in the closed and rigid hand, and in the arms.

256. Secondly, spasmo-paralysis is apt to supervene in chronic cases of paralysis agitans; and, in this case, strange to say, I think it is the effect of a sustained act of volition, of which the patient is unconscious. It ceases, on certain occasions, when the attention is drawn to another object.

4.—*Spinal Syncope.*

257. Sometimes, instead of the usual apoplectic or epileptic attack, there are sudden pallor, perhaps with sickness, faintishness, a clammy perspiration, &c.

258. This state of things may be the result of irregular circulation in the medulla oblongata, or the

effect of alarm; in the latter case, with or without previous flushing.

259. I have already compared this kind of apoplectic or epileptic affection to the state of things induced by the motion of a swing or of the sea, or by a blow or fall on the head.

260. The recumbent position and cordials are required. Otherwise, the treatment is the same as in the more ordinary apoplectic or epileptoid affections.

5.—*Hidden Seizures.*

261. This subject will be best illustrated by the following most interesting case:

262. At the close of 1848, I was summoned to see Mr. ——, of ——, aged about fifty, a merchant. I found him in a state of delusion in regard to his affairs. The other symptoms involved a bilious tinge of the eye and complexion, and the urine loaded with lithates, which led me, at that time, to the opinion that the condition of the brain and intellect might be the effect of disarrangement or defect of the secretion of the liver and kidney. I prescribed alterative doses of the mercurial pill and mild antacid aperients, and my patient soon recovered.

263. This amendment was not destined to be of long duration. Mr. —— suddenly relapsed, and became the subject of a violent maniacal paroxysm, of

considerable duration, and requiring a keeper. What was now the *precise* nature of the disease?—an anxious and difficult question in every case of mania. There was, on this occasion, no remarkable tinge of the eye or skin,—nothing very wrong in the secretions,—to account for the symptoms. Was the case arachnitis? This opinion seemed probable. It was treated with more decided mercurials and antacid aperients, with a spirit lotion applied to the head, and fomentations to the feet; whilst opium, in large doses, was given, at the suggestion of another, for the violence of the delirium, and apparently with good effect. The patient again recovered, less speedily, however, than before.

264. We were again doomed to be disappointed. The patient again suddenly relapsed; but now, instead of delirium, the principal symptom was a sort of amentia, or dulness of intellect; so that, as I had before suspected arachnitis, I now suspected effusion. We pushed our former remedies, the opium excepted, and the patient again recovered; and indeed, so little tardily, as to compel us to relinquish the idea of effusion.

265. It was after this event—after this third attack, in which, for a time, I suspected *effusion*, but which passed off too soon for effusion—that a new idea occurred to me, involving a new question; and on reconsideration of the whole case, I asked—Had there been a seizure, or rather seizures, of an epileptoid character, unobserved, in the night, or when the patient was from home? In a word, was it a case of hidden

seizures?—a question now, I believe, occurring in the practice of medicine for the first time; and of how great importance will, I think, shortly appear,—a question agitated most anxiously, not only by the physician, but by the most devoted of wives.

266. Indeed, it is to extracts from this lady's letters that I now beg your especial attention, as to an account of events, free from bias, and full of the deepest interest:

267. "The sad experience of the last two months (during which time I have witnessed several distinct convulsive attacks) has convinced me that Mr. —— has been subject to many seizures entirely *unknown* and unobserved, except in their effects. During the last week of February last he was in a state of great mental excitement—quite distressing to those around him. On the 1st of March, about noon, a sort of stupor came over him, to me quite unaccountable. We were walking at the time, and he had remained *perfectly silent* for at least a quarter of an hour before my attention was drawn to the altered expression of his countenance. This stupor lasted only a few—perhaps three or four—hours, but it was followed by great nervous excitement or mental agitation, almost bordering on delirium. I did not *suspect*, of course, the *real* cause of this—indeed, I looked upon it as another phase of his distressing illness. On the night of Saturday, March 3, Mr. —— retired to his room in a state of the greatest mental agitation. At one

o'clock he fell into an apparently sound sleep. At about half-past seven o'clock on Sunday morning, he arose from his bed, and began, as usual, to dress himself, or rather, he *tried* to dress himself. I was greatly surprised and alarmed to observe that a great change had come over him. His hand was feeble, his step was unsteady, his intelligent countenance had a vacant expression, and to my anxious and repeated enquiries he only answered by a movement of the head, to which I could attach no meaning. During that and the following day he remained in a deep stupor, only occasionally giving imperfect and indistinct replies to questions put to him. On Monday morning Dr. Marshall Hall saw him. He thought there must have been some attack of an epileptoid character; but nothing had been observed—nothing could be told. On Tuesday morning there was decided delirium, which lasted three or four hours. The same evening, in walking to and fro in the drawing-room, his hand, in which he held mine, was nervously contracted several distinct times, and his head gradually drooped till it almost rested on the shoulder. Shortly afterwards he was seized with a sort of shudder, which I thought arose from fear—a noise having been heard, which he said was 'loud thunder.' This attack, slight as it was, enfeebled yet more the hands and feet, and increased the stupor, but no delirium followed. This was all that could be detailed then to Dr. Marshall Hall, who made most anxious and minute inquiries on the subject.

268. "About the end of the month of March, Mr. ——, while sitting in his chair, fell asleep, no very unusual occurrence. I left the room to arrange some domestic matters, and Miss —— remained alone with him. On my return, she described what we both ignorantly believed to be the effect of a troubled dream, or an uneasy position, or both combined. Miss ——'s attention was first called to her brother by a slight gurgling in the throat. The lower lip had fallen greatly; the tongue, she said, moved 'most curiously from side to side,' and the eyeball was drawn upward; but in a few minutes all this passed away; the features resumed their former expression; and all this took place without any apparent interruption to the sleep.

269. "The first week in May we removed to ——. Within the short space of ten days after our going thither, I was distressed and perplexed to observe, that on two distinct occasions the articulation suddenly became slow and imperfect, the voice low and feeble, and on each occasion there was a loss of power, mental and bodily. But I had observed no seizure, neither did I suspect any. On the 19th of May I was standing talking with Mr. ——, and while he was in the very act of speaking, the mouth was suddenly drawn to the right side, the tongue became paralyzed, and the right hand was drawn inward. In great alarm (for this was the first *unequivocal* seizure I had ever witnessed), I took the hand and rubbed it, as I would have done for cramp, four or five minutes. While I

was doing this, all appearance of a seizure passed away, only the effects remained. For several hours afterwards the articulation continued to be slightly imperfect, the voice low, and the step feeble and unsteady.

270. "Within a week after this, just as we were finishing a game at Backgammon, Mr. —— had a similar attack, equally short in duration, but rather different in its effects. On this occasion, slight delirium followed, but the articulation was afterwards perfect.

271. "Both these seizures would have been entirely unknown, unnoticed, save in their effects, had my attention at the time been directed to any other object.

272. "In a few days after this, followed the severe and most alarming attack, which lasted four hours. Then succeeded another, and another, equally distressing, the effects after each attack varying very considerably. Thursday, July 26."

273. On one of these occasions this lady writes, "This morning my dear husband has unhappily had another of those dreaded seizures, which, though slighter than some of the previous attacks, has taken away the power of speech; and the right side is also paralyzed." On another she writes—

274. "I think I have in conversation once, or more than once, referred to the peculiar feeling, or rather absence of all feeling, in the right arm, which Mr. —— often felt on first awakening from sleep. It is about three years since he first complained of this; observing that his right arm must either be 'paralyzed

or benumbed.' Sometimes he complained of this on awaking in the morning, but I think more frequently when he awoke from the hour's sleep which he usually took every evening after dinner, when he had no guests at his table."

275. My *conjecture* must indeed have appeared extraordinary to every unbiassed mind, for it was soon —too soon, alas!—converted into *fact*, by the occurrence of seizures of no dubious or equivocal character.

276. The fourth serious attack was one of distinct epilepsy, leaving defective articulation, paralytic weakness of the hand, and imbecility of intellect, for a time, and then gradually but imperfectly receding.

277. Other seizures followed, open and unequivocal: these it is unnecessary to detail. My conjecture had become a sort of prediction fulfilled. My patient died, and a post-mortem examination was made, of which the following is the brief and imperfect detail:—

278. "The arachnoid membrane presented the appearance of opacity, with effusion of lymph beneath its surface. The brain, immediately beneath the arachnoid membrane, was remarkably firm, and contained an unusual quantity of blood. Three or four tablespoonfuls of serum were found in the lateral ventricles. No other morbid change was observed in the brain. No other organ was examined. September 23, 1849."

279. It now becomes an interesting question—

What are the probable effects of repeated seizures of the kind described on the delicate tissues of the brain and its membranes? May they be such as are described in this post-mortem examination?

280. The *first* effect is, doubtless, congestion. This may subside after the first and second attacks. But does it entirely subside after the third or fourth? May it leave lesion of tissue? And if so, of what kind? In the delicate tissue of the encephalon, may it have the appearance of arachnitis or of encephalitis? — effusion of serum or of lymph?—or softening or induration?

281. When, in cases of paroxysmal disease, such effects are found, who shall say, without years of special study and observation, whether, in fact, they be *causes* or *effects?*

282. But that in all such cases a most careful inquiry should be made, in regard to past 'hidden seizures,' there can be no doubt.

283. Nor does this question cease here. It may become a *legal* question; and, in another and terrible sense, a question of life and death.

284. A seizure—perhaps a hidden seizure—may take place, and leave a monomaniacal tendency to suicide or homicide. *Crime* may be committed, and no proof of previous insanity exist. Of such a case, the Law, hitherto, equally with Medicine, has taken no cognizance. This crime may be one involving loss of property, honour, life.

285. Such a case occurred recently at Greenwich. A nurse-maid rose from her bed, went into the kitchen, seized a carving knife, partially severed the head of her little charge from its body, and all this without detectible motive. She had been subject to some kind of seizure, supposed to be hysterical, but far more probably epileptic.

286. How fearful the consequences of such a state of things might be, I need not say; but certainly every means should be employed to detect such a hidden seizure in such a case; and especially the temples should be examined for ecchymosis; the tongue, for a bitten wound; the pillow, for marks of foaming at the mouth; and the linen, for the stains left by some evacuation; whilst the patient should be carefully interrogated, to detect the slightest incoherence or aberration of ideas, or confusion or defect of memory.

287. Under all circumstances of sudden crime, the possibility of the occurrence of a seizure should be present to the mind; how much more, if the patient have been epileptic, or if the case be *puerperal!*

288. But, to return to the medical view of this subject, and the case before us: let us bear in mind that the diagnosis is every thing in the practice of medicine; and that we have, in diseases of the head, sometimes to trace the affection to deranged function of remote viscera; sometimes to detect an original organic disease of the encephalon; and sometimes to

trace the symptoms to a previous, but unobserved, and therefore hidden, paroxysmal seizure.

289. The observant Heberden remarks: "Qui semel occupatus est gravi paralysi, sæpe experitur leviores morbi accessiones, quæ, cum noctu, vel per quietem invadant, facile *latent* eos, qui ægrotis famulantur. Harum vero justissima erit suspicio, ubi ea mala, quæ secuta sunt accessiones priores, denuo intra paucas horas plurimum ingravescunt*."

6.—*Paroxysmal Mania.*

290. I have known a maniacal paroxysm to follow an epilectic attack. I have just described a case in which a violent maniacal paroxysm followed what afterwards appeared to have been a *hidden seizure.* I have had occasion to watch a case in which a paroxysm of mania came on at uncertain intervals, after a prolonged and perfect 'lucid interval,' and was superseded by the well-timed administration of emetics.

291. May we not infer from these facts that mania is frequently a paroxysmal disease, holding the place, in regard to other cases of mania, which paroxysmal apoplexy does to organic apoplexy? And does not this view suggest the propriety of the repeated administration of emetics in such cases of mania?

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* Op. cit. p. 296.

292. The paroxysm may be excited, like that of paroxysmal apoplexy and inorganic epilepsy, by emotion or gastric irritation. Some source of exasperation may have occurred, or some improper article or quantity of food may have been taken, or gradual load of the stomach or bowels may have taken place—may have proved the source of trachelismus, and this of a hidden seizure, and this, in its turn, of mania. The mind must be kept tranquil, the diet must be of the most digestible kind, and the bowels must be kept well moved daily; in addition to which, an emetic should be given at stated intervals, or on the occurrence of any symptoms threatening an attack.

293. Some cases of mania assume decidedly the paroxysmal form, subsiding entirely in their 'lucid intervals.' Others continue without absolute intermission, but experience paroxysmal exacerbations.

294. In some cases these paroxysms have been distinctly traced to intemperance in diet. In the case to which I have alluded, the attack, which had usually returned after the space of four or six weeks, has been warded off by weekly emetics for sixteen weeks! These emetics consisted of two grains of the tartrate of antimony, mingled with the patient's tea, unknown to him, when he had been observed to commit an error in his diet.

295. It will be remembered that mania is apt to follow an apoplectic, paralytic, epileptic, or convulsive affection; and I need scarcely again advert to the

case of hidden seizure just detailed. Mania forms one of the *Class* of paroxysmal cerebral and spinal diseases. It may arise from mere vascular distension, the effect of such a seizure.

296. In paroxysmal mania, as in paroxysmal epilepsy, I am persuaded that there is the same pathology in trachelismus, and the same hope of successful treatment from emetics, or from emetics, antacid aperients, and mild alterative mercurials combined.

297. I am persuaded too that this form of mania, at least, admits of remedy more frequently than is supposed; and we have still to discover the rationale of other forms of insanity.

298. These cursory remarks must be viewed as merely suggestive. The subject must be carefully investigated. But I have long meditated the institution of an Asylum appropriated to cases of short duration, the stay of which within its walls should be duly limited. Each of these limited periods might be *one year*.

CONCLUSION.

299. Whatever may be the exciting cause or causes of paroxysmal cerebral and spinal seizures and their mode of operation, the following events must be involved in them:

1. They must be capable of inducing and ex-

plaining flushing of the countenance, ecchymosis, epistaxis, &c.

2. They must be capable of inducing and explaining the *venous hue and turgidity* both of the *face* and of the *neck ;*

3. They must be capable of inducing and explaining both *cerebral* and *spinal* symptoms;

4. They must be such especially as will explain the ready transition of the *cerebral* into the *spinal* epileptic seizure ; *see especially* § 232 ;

5. They must admit of accession and recession in a moment of time ;

6. They must admit of assimilating the latent with the evident spasmodic conditions of the muscles and veins of the neck, with their ulterior effects ;

7. They must involve the cause and influence of *Sleep*, the influence of the *Emotions* and of the *Irritations ;*

8. They must admit of inducing and explaining the morbid anatomy, and especially the transition of mere cerebral congestion into effusion, rupture, and softening ; &c. *See* § 188.

300. It is no unusual occurrence to meet with cases in which the slight attack with cerebral symptoms only, and the severer attack with spinal symptoms, take place variously in the same patient, the former sometimes passing into the latter,—convulsion, torticollis, laryngismus, and the bitten tongue, being superadded to unconsciousness, with a flushed coun-

tenance, dilated pupils, &c. These are obviously different degrees and phases of the *same* affection. But in the severer case, the trachelismus is *obvious*. Can it be doubted that it exists equally in the milder, although *latent?*

301. But, in other cases, the milder form of threatening or seizure consists in giddiness, loss of consciousness, the fear of falling, or a momentary loss of power of the articulation or of the hand; whilst the severer seizure is decidedly apoplectic and hemiplegic.

302. In a third class of cases, the epileptic seizures themselves gradually assume more and more of the apoplectic and hemiplegic forms.

303. All tend to impair the memory or intellect; the first attacks may be followed by mania, and repeated attacks, by amentia and general paralysis, in various degrees.

304. A momentary trachelismus and phlebismus, with *congestion*, explain the transitory and milder seizure; a severer congestion, with greater intra-vascular distension, explains the severer seizure, from which recovery still takes place speedily and without any permanent effects; or which, if fatal, leaves no lesion, except congestion, detectible on a post-mortem examination; when, to intra-vascular congestion, ecchymosis, or extravasation of blood, or the effusion of serum, supervenes, we witness the sad and permanent effects of the same trachelismus and phlebismus, either partial or general.

305. Thus the chain of cause and effect, or effects, appears to me complete.

306. All this, and much more, is accomplished by the doctrine of *Trachelismus*. I think, therefore, I am justified by bringing it before you, and commending it to your notice.

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307. And here, Gentlemen, I must bring these Lectures to a close. It has been my anxious wish to lay before you, in facts, and in the words of others, as much as possible, the argument for the institution of a *Class of Cerebral and Spinal Seizures*, with their rationale, diagnosis, prevention, and treatment. How imperfectly I have done this, I am well aware. But I trust that the attempt will be received by you with candour and generosity.

308. Allow me to thank you, Sir, once more for the opportunity you have kindly afforded me of bringing the subject before this College; and you, Gentlemen, for your kind attention during the course of my imperfect observations.

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NOTES.

Note to § 20—29.—The same remarks which are here applied by Abercrombie to apoplexy and paralysis, may be applied with equal truth to epilepsy, to the various forms of convulsion, and to mania.

The morbid appearances may be of the same negative character, or consist merely in distended vessels, or effused lymph or serum.

Note to § 108.—Mr. L——, of S——, aged 50, consulted me for the following affection:—He was liable to be taken with loss of speech, and loss of power of the right hand, and, on riding in his chaise, with loss of power of the side. At these times he felt the sensation of '*strings*' drawn tightly along each side of the neck, with a '*rush of blood*' up the neck and cheeks, with dimness of vision, deafness, vertigo, &c.

Mr. R——, aged 50. In this gentleman the whole face was of the deepest red, the everted under eye-lid presented the appearance of a deep venous congestion, and the veins of the forehead were largely distended. He too described a sensation of '*dragging*' on each side of the neck.

In August last, on walking across a court yard, he was seized with giddiness, and was in danger of falling. In October, he lost the power of the right hand, and did not regain it in a fortnight, nor even afterwards perfectly. Once, on awaking, he felt 'as if he was going to have a fit.'

By cupping, daily antacid aperients, abstinence from all stimulants, a simple diet, a raised position in bed, an alcoholic lotion applied to the head, and attention to preserve the feet warm and dry, Mr. R—— was effectually relieved.

Of this case Mr. Prescott Hewett kindly took the following note:

"On examining the patient, Mr. ——, whom I saw with you, I found that the whole skin of the face was minutely injected, and of a scarlet colour. The conjunctivæ of both eye-lids were also intensely injected throughout, and of a deep red colour. The right hand, the power of which had been, at times, partially lost, was weaker than the left; but the corresponding leg was not affected.

"The following was the history given by the patient. Frequent swimming in the head, especially when stooping; extreme heat of the face upon first lying down; also headache in the recumbent posture, which frequently disappears on rising. Studying, or application of any kind, also causes swimming in the head, and, on one occasion, sickness. At night, when in bed, the hand frequently becomes weaker than usual. At times, strange sensations on both sides of the neck, as if of strings passing upwards on both sides towards the head. Last week, frequent pain down the thigh and leg, like cramp flying about, but for a very short time. Two or three days before I saw him, he had suddenly awoke in the night with the idea that he was about to have a fit. The swimming in the head was at the time very distressing, and the strings, as he called them, on the sides of the neck were very painful."

Note to § 168.—It is important to observe, that, whilst in paroxysmal apoplexy the trachelismus is latent, in severe epilepsy it is first latent and then evident.

In cerebral epilepsy, the trachelismus is, as in paroxysmal apoplexy, latent. The *head* and eyes are fixed, the face flushed, and the pupils dilated, and nothing more. To this state evident trachelismus may, or may not, supervene. In the former case, it is manifested in the form of laryngismus, odaxismus, torticollis, &c.

The effect of a ligature applied round the neck is, according to its degree and duration, that of the latent or that of the evident trachelismus. How fearful is the following short account of the poor girl, Jael Dennys, by the eye-witness, Elizabeth Hammond, given in *The Times* for March 8th, 1851:—"I helped to undress her. I observed that her face was very black and swollen, that her mouth was bubbling with blood, and her tongue protruded from it and clenched very tightly by her teeth. Blood was also oozing from the nose, the eyes, and the ears. When I took off her clothes, I saw that her body, from the waist to the shoulders, was very black indeed, and her neck was quite lacerated by the cord through the skin."

The first effect of a cord tightened round the neck, is the same as that of trachelismus, or the apoplectic state; and Mr. Williams well observed, in the case from which I have made the foregoing extract, that "the effect of the pressure by the first coil of the rope upon the trachea" (the neck rather) "must have been immediate insensibility, and that it was impossible for her to have made two other coils of the rope round the neck afterwards."

The epileptoid state is a subsequent effect—an effect of a severer application of the cord (which, I think, could scarcely be induced by the mere force of the hands of a suicide), or of a later stage. It is in this manner that, to the apoplexy, convulsive phenomena, the protrusion of the tongue, and the closure of the maxillæ, are superadded.

In the same manner convulsion is occasionally superadded to apoplexy, and spinal supervenes on cerebral epilepsy. They are different phases or degrees of one and the same morbid affection.

Mania may supervene on both, or either; and amentia, if the seizures be repeated, or the induced condition be severe and long continued.

Note to § 169.—I omitted to state, in its proper place, my views respecting the morbid anatomy in paroxysmal diseases. The morbid

appearances found on a post-mortem examination are apt to be viewed as the disease or as the cause of the disease. They are, in reality, its *Effects*. Fulness of the veins and of the intervening blood-channels placed between these and the arteries, red points, or points of ecchymosis, the effusion of a clot of blood, the consequent softening, the effusion of serum, the presence of fibrine in the arteries, are *all* the effects of repeated congestion,—the effects and not the causes of the original malady, though the causes, in their turn, of subsequent symptoms. Of these symptoms, I may observe that the local softening is the cause of partial paralysis, whilst the general effusion of serum is frequently the cause of amentia and of general paralysis.

The effusion of serum is seen in the ventricles and under the arachnoid of the surface, and at the base of the brain. In some instances the arachnoid is raised by the serum into the form of a vesicle. In others, the plexus choroides is affected in a similar manner, and a vesicle or cyst is seen to occupy one part of it.

These views, in regard to the morbid anatomy of paroxysmal diseases of the cerebral and spinal systems, are of the utmost moment. We have too long been in the habit of concluding that such morbid anatomy is the disease; and in this manner even the most positive department of medicine has led us into error. These very appearances must be *interpreted*, and that—by the *physiology*.

It will be interesting to ascertain whether there be any difference between the post-mortem appearances in paroxysmal apoplexy and epilepsy. I believe there is none,—a further proof of the nature and identity of the causes and rationale of these diseases.

Note to § 188.—It becomes a most interesting question—What are the precise conditions of the arteries and veins after repeated paroxysmal seizures? I imagine the deposit of fibrine, frequently found in the arteries, not unfrequently the *effect*, rather than the *cause*, of softening of the brain, and perhaps of other tissues, organs or limbs; and even, in some cases, of gangrene.

The difference between Apoplexy and Epilepsy is the difference between trachelismus and laryngismus, jugular and vertebral vein, cerebrum and medulla oblongata.

Heberden observes—"Paralysis et apoplexia sunt tantum diversi gradus ejusdem morbi*." This is true in a certain limited sense, especially in the *paroxysmal* forms of these diseases. But, in the same sense, not only apoplexy and paralysis, but these and epilepsy, and mania, are one and the same disease, differing in degree. But whilst apoplexy affects the cerebrum, and paralysis a hemisphere,—epilepsy affects the medulla oblongata, and mania again the cerebrum.

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1. *Apoplexy,*
2. *Paralysis,*
3. *Epilepsy,*
4. *Convulsion,*
5. *Mania,—may each be arranged into—*

CLASS I.
1. *Of Inorganic Origin;*
2. *Of Recurrent Paroxysmal Form;*
3. *Of short Duration, terminating in perfect recovery, or Fatal,*
4. *Without post-mortem appearances, or*
5. *With such as are Effects only.*

CLASS II.
1. *Of Organic Origin;*
2. *Of Permanent Form.*

Of the whole doctrine of *Trachelismus,* there is not the shadow or the possibility of a doubt, as far as *Inorganic Epilepsy* is concerned. But the paroxysm or paroxysms of inorganic epilepsy lead

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* Op. cit p. 285.

to apoplexy, to paralysis, or to mania. Nay, the milder form (‘*le petit mal*’) of epilepsy *is* cerebral or apoplexy, the trachelismus being *latent*, however it may become evident enough when this passes into the severer or spinal form, or ‘*le haut mal*.’

Apoplexy and paralysis have been paroxysmal and recurrent, receding entirely in the intervals, for years,—in one case, for twelve years. The peculiar form of mania of which I am treating is characterized by its ‘lucid intervals.’

Every fact conduces to the view that these cases should be separated from such as are of *organic origin*, arranged together, and connected together. ‘Le petit mal’ itself is sometimes, as Heberden beautifully states, ‘*oblivium*’ or apoplexy, and sometimes ‘*delirium*’ or mania; *see* § 6; the next stage being convulsive epilepsy.

And what a ray of light is thrown upon the post-mortem morbid appearances in some cases, and their absence in others!

In speaking of the subjects of these Lectures, we may now speak, not of apoplexy, paralysis, epilepsy, mania, but of *nervous seizures*, assuming an *apoplectic*, *paralytic*, *epileptoid*, or *maniacal* form; and thus our diagnosis will be implied in one designation.

BY THE AUTHOR:

MEMOIRS ON THE NERVOUS SYSTEM; 1837;

NEW MEMOIR ON THE NERVOUS SYSTEM; 1843;

SYNOPSIS OF THE SPINAL OR DIASTALTIC NERVOUS SYSTEM; 1850.